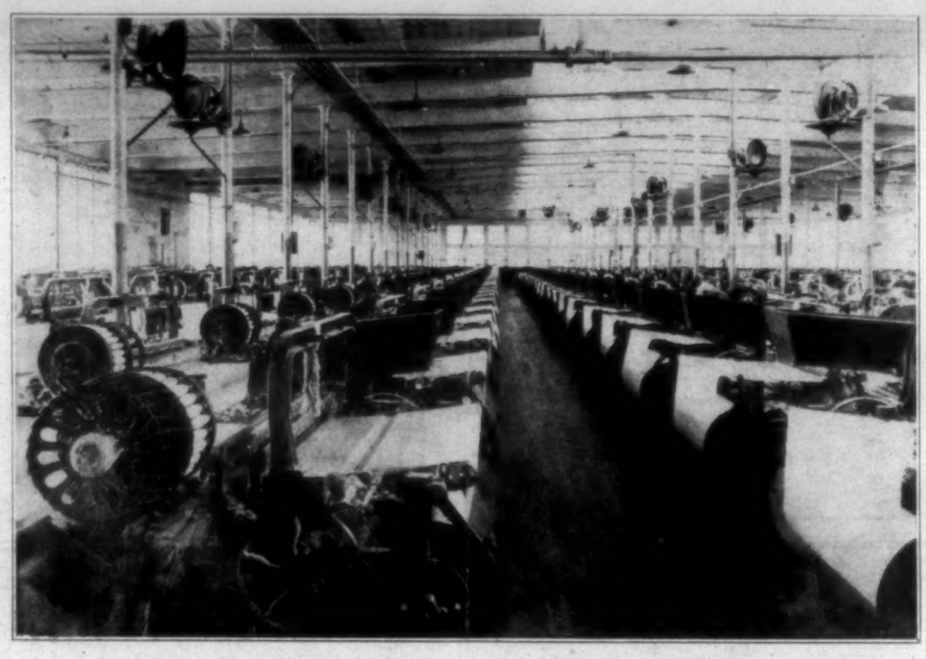
Commerce

Better Equipment for Southern Mills

SOUTHERN TEXTILE BULLETIN

VOLUME 26 CHARLOTTE, N. C., THURSDAY, MAY 8, 1924. NUMBER 10



Fountain Cotton Mills, at Tarboro, N. C., use the BAHNSON SYSTEM of humidification

The ability of your humidifier system to distribute the **right amount** of moisture into every portion of your mill evenly and thoroughly is what determines the worth of your humidifying system to you.

Because the Bahnson Humidifier is equipped with a big fan, the air in the mill is kept circulating freely, and the humidity is uniform in every portion of the room where Bahnson Humidifiers are operating.

Then there is the automatic control, which graduates the feed of the water to the machine in exact accordance with the needs of the air around the machine. It establishes, in the surest, most positive way in the world, absolutely accurate control of the atmospheric conditions in your mill.

Our Services are Yours for the Asking.

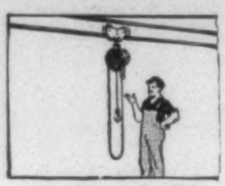
The Bahnson Company

Humidification Engineers

Winston-Salem, N. C. **New York Office: 437 Fifth Ave.**

Five Men and a Hand-Truck

equal



One Man and a Yale Spur-Geared Chain Block on a I beam trolley.

AND the one man with the Yale equipment will perform the same work in the Safest Way, take up less working space, and do it quicker.

The Yale Spur-Geared Block is the *safest*, speediest, portable hand hoist.

"From Hook-to-Hook-a-Line-of-Steel"

The new Yale catalog shows you many ways to save money and increase production in your plant by using Yale Chain Blocks and Electric Hoists.

Let us send you your copy

Textile Mill Supply Co.

TRADE YALE MARK

Textile Mill Supply Co.

INCORPORATED 1898

CHARLOTTE, N. C.

AGENTS FOR

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Card Clothing

Reeds

WYANDOTTE
Concentrated Ash Textile Soda K.B. Special Ash Detergent

We Carry a Complete Stock and Can Make Immediate Shipmen

Everything In Mill and Factory Supplies

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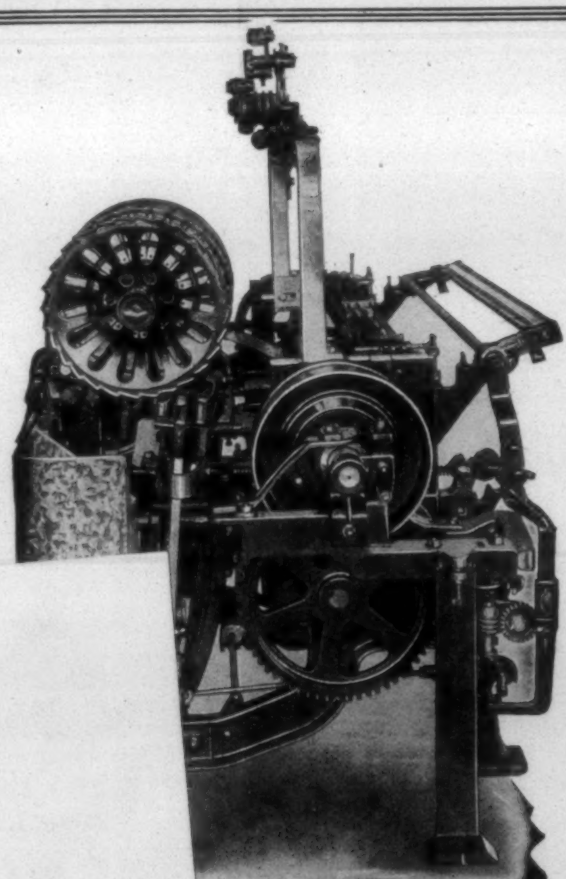

We Build a Simple Automatic With Rugged Design

LE MFG. COMPANY
Milford. Mass.

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ESTABLISHED 1831

TEXTILE MACHINERY

Manufacturers of the following Machines

COTTON MACHINES

- Cleaning
- Opening
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- Drawing Frames
- Roving Frames
- Spinning Frames
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- Twisters
- Reels
- Quillers
- Loom Dobbies

COTTON WASTE MACHINES
Cotton and Woolen Systems

- Openers
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- Card Feeds
- Full Roller Cards
- Condensers
- Revolving Flat Cards
- Derby Doublers
- Roving Frames
- Spinning Frames
- Spoolers
- Twisters
- Special Spinning Frames

SILK MACHINES

- Ring Twisters

WOOLEN MACHINES

- Card Feeds
- Full Roller Cards
- Condensers
- Wool Spinning Frames

WORSTED MACHINES

- Cone Roving Frames
- Ring Twisters

MAIN OFFICE AND WORKS
WHITINSVILLE, MASS. U.S.A.
SOUTHERN OFFICE CHARLOTTE, N.C.

HOUGHTON

HOME AGAIN

An Advertisement By Chas. E. Carpenter

HELLO! Everybody!

Suppose you have noticed that our copy has not been changing with each issue.

I have been away. About as far away as a fellow can get without leaving the good old U. S. A. Been on a speaking tour, which took me south as far as New Orleans and west as far as San Francisco, so the publishers have been repeating old copy.

I will try to see that does not happen again.

I wrote the copy for the HOUGHTON LINE en route and I think I could have written copy for the **Southern Textile Bulletin** also, as I travel with a secretary and a stenographical outfit.

But I forgot.

Well, let's see what's new since I last talked to you?

You might be interested to know that by improvements in Chicago, the purchasing of a plant in Detroit, and the arrangement for a few small compounding stations at several new points, our Philadelphia Plant has been relieved of all of the middle western U. S. trade, leaving the Philadelphia Plant to supply the wants of the Eastern and Southern States, Pacific Coast and export trade.

We have added a 25% addition to the Philadelphia Oil Plant; have doubled the size of the Philadelphia Tannery and are now for the first time in many years, with a production capacity decidedly larger than our sales. This will, of course, enable us to render still better service to our trade.

We have also entirely reorganized our distributing facilities.

We have placed additional stocks at several new centers; and instead of having the General Sales Manager at Philadelphia manage the sales of the World (through his assistants, of course), we now have a Sales Manager for each district. These several Sales Managers, together with the General Sales Manager, and certain Executives of our Company, constitute an advisory Board of Sales Managers, which meets at regular intervals, so that the Sales Managers may exchange knowledge and experiences.

Formerly the distributors were compelled to come to the General Sales Manager in Philadelphia, as it was impractical for the General Sales Manager to cover the entire territory (the World), more than once in two years and to do this he would have to be absent from his Philadelphia office constantly. Now the Sales Manager goes to the Distributor right in his district; learns the conditions, the wants of the trade; and brings them back to Philadelphia.

This keeps our Distributors in their districts all the time at the service of our customers. Formerly they spent much of their time traveling to and from Philadelphia.

They came very near doubling the size of the VIM Leather Shop while I was gone, but I canned that until Fall. As our German friend said, "Der ist sugh a ding ast makin haste slow enough." I don't like to have too much that is new functioning at one time. It is better to absorb things somewhat slowly.

Our literature is being pretty well revamped and will be distributed as it comes off the press. It will all be good and contain much information that is both new and novel, so you had better give all our mail stuff the once over when you receive it.

The sales of HOUGHTON'S WARP CONDITIONER have eclipsed the sales of any previously marketed textile product. That speaks well for something. We think that it is the product itself that is responsible. Some think that it is the improvements we have made in production and distribution and others give our advertising credit. Perhaps it is a little bit of each.

It is a great product, anyhow, and you will do well to investigate it.

E. F. HOUGHTON & COMPANY
Works: Philadelphia—Chicago—Detroit
Distributors Located At

ATLANTA, GA.
1001 Healy Building
Phone: Walnut 4651

GREENSBORO, N. C.
P. O. Box 81
Phone: Greensboro 1990

GREENVILLE, S. C.
P. O. Box 1143
Phone: Greenville 2316

ST. LOUIS, MO.
418 N. Third St.
Phone: Olive 3559

AND IN EVERY OTHER TEXTILE MANUFACTURING CENTER OF THE WORLD

Oils and Leathers for the Textile Industry

Increased Production From Your Cards

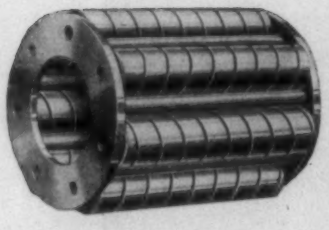
Easy Starting — Hyatt equipped card cylinders start so much more easily than plain bearing cylinders that the time required to bring a battery of cards up to speed can be cut in half. In addition, lower starting torque reduces belt slippage and wear.

Accurate — Because Hyatt bearings retain their accuracy indefinitely, resetting of the cylinders and licker-in is necessary only when the clothing must be reground. This insures continuous production of clean, uniform sliver.

Durable — For the same reason production losses due to renewing bushings or truing up worn shafts are entirely prevented with Hyatt roller bearings.

Clean — Properly mounted, Hyatt bearings are oil-tight, which reduces the amount of spoilage, since damage due to oil leakage is completely eliminated.

You can secure these and other advantages by specifying Hyatt roller bearings on your cards.

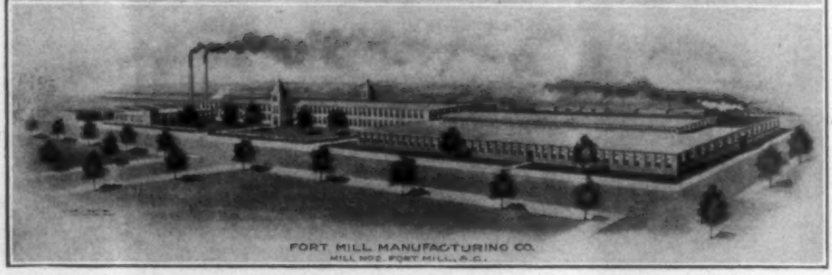


HYATT ROLLER BEARING COMPANY
NEWARK DETROIT CHICAGO SAN FRANCISCO
HUNTINGTON PHILADELPHIA PITTSBURGH MINNEAPOLIS
WORCESTER BUFFALO CLEVELAND MILWAUKEE

Eureka Cotton Mills, Chester, S. C., and Fort Mill (S. C.) Manufacturing Co., mills in the group headed by Colonel Leroy Springs of Lancaster, S. C. Now have under construction in their villages 115 modern Minter Homes. These houses for employes are being erected for the mills by our own experienced organization under a contract covering all details and providing for the delivery of the houses to the mills completed and ready for occupancy.

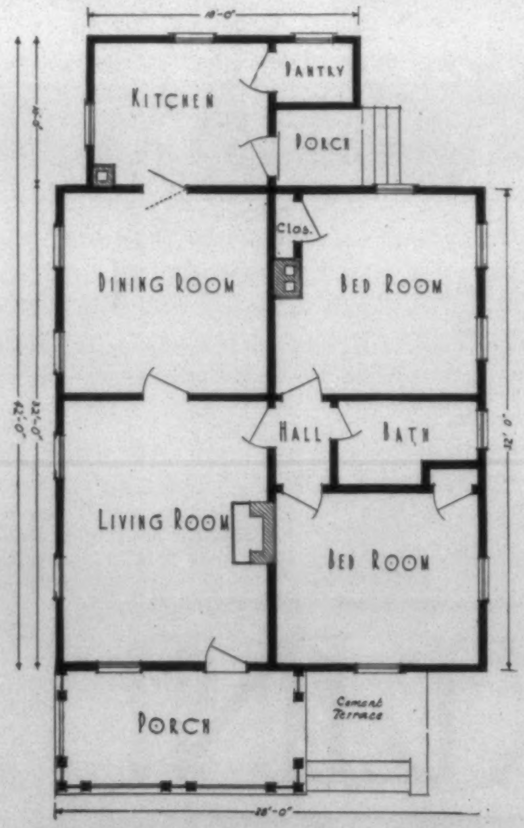
FORT MILL MANUFACTURING COMPANY
MILL NO. 1 FORT MILL S. C.

EUREKA COTTON MILLS
CHESTER, S. C.



FORT MILL MANUFACTURING CO.
MILL NO. 2 FORT MILL, S. C.

Minter Homes Are Being Erected Now By These Mills for Their Employes



Floor Plan of one Type of Minter Homes Bought by Col. Springs' Mills

The Minter City

About 150,000 people now live in Minter Homes. If all Minter Homes were moved to one location, this Minter City would have a larger population than Fall River, Mass.; Paterson, N. J.; or Norfolk, Va., Visitors to Minter City would find its streets lined with every type of residence from big apartment houses to inexpensive cottages. The experience our organization has gained in building 30,000 Minter Homes is at your disposal.

We want to quote on the houses you need.

The Minter Homes Co.
Greenville, South Carolina

Minter Homes Corp.
Huntington, West Virginia

You Send it to Us *like this*

WE RECEIVE yarn for dyeing by the Franklin Process on spinning bobbins, twister bobbins, roving bobbins, cops, cones, parallel tubes or jackspools. Or if customers are equipped with the necessary Universal Winders they can wind their yarn to our Franklin Dyeing Tubes, thus reducing the time that the yarn is in our hands.

We can make substantial shipments within a few days from receipt of order, when the occasion demands it, if customers will store grey yarn with us and order it out as dyeing requirements arise. We can furnish grey yarn for such purposes if they so desire.

OUR RANGE AND QUALITY OF WORK

WE ARE the largest job dyers of yarn in America.
We apply all classes of colors from ordinary direct to the best.
We are also manufacturers of glazed yarn.

We dye cotton yarns for shirtings, dress goods, curtain cloths, narrow fabrics, towels, bed spreads, plush and velvets, hammocks, laces, ticking, upholstery goods, thread, etc., fine splicing cotton yarn for hosiery; hard twisted cords for tire fabrics, fire hose and cable cords;

FRANKLIN

We Return it to You
like this

WE RETURN yarn after dyeing, or dyeing and glazing, on 3″ Franklin Tubes, 6″ Franklin Tubes, 6″ paper tubes, jackspools, or Wardwell or Butt braider tubes.

Wasteful backwinding from skeins or long chains is eliminated. Franklin Packages will fit directly into the V creel for warping in a colored goods mill and consequently eliminate the need of beamers.

Franklin dyed yarns, being under tension at all times, are delivered to you with exactly the same twist and count as when received, and are free from kinks or felting.

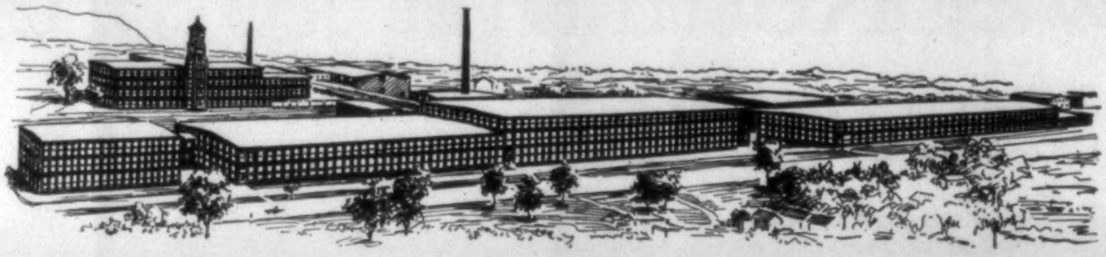
worsted yarns including fine singles that can not be dyed by any other process; Merino yarns; silk noils; jute, hemp and linen yarns.

Applied in a closed kier under pressure Franklin Dyeing completely penetrates the yarn effecting unusually solid, even and brilliant colors.

FRANKLIN PROCESS COMPANY
Yarn Dyers - Yarn Spinners - M'f'rs Glazed Yarns - Dyeing Machines
Philadelphia PROVIDENCE Manchester, Eng.
New York Office: 72 Leonard Street
SOUTHERN FRANKLIN PROCESS COMPANY
Greenville, S. C.

PROCESS

TO HARNESS THE RAINBOW FOR THE SERVICE OF MANKIND



A Sermonette to the Textile Industry, with REGAIN as a Text

In no other industry are profits or losses more affected by invisible air conditions.

The Silk Industry years ago first recognized the need of a fixed relation between the actual amount of silk and water involved in a sale. The high price of the raw material naturally enough encouraged this in order to prevent abuses. Now, other textile materials, while of low values per pound are being manufactured in such large quantities in individual mills that the opportunity for loss or gain is fully as great as in the silk industry.

Water is always present in textile materials. It is to the seller's interest to have the amount large. It is to the buyer's interest to have the amount small. These conflicting interests demand a standard called regain, to prevent business friction. These standards are now so well established that the mill shipping goods at less than accepted regain is merely unjust to its stockholders.

Humidity and its application to your problem is a genuine science. Unscientific humidity will not give the results. Get the very best you can buy.

Parks-Cramer Company
Engineers & Contractors
Industrial Piping and Air Conditioning
Fitchburg Boston Charlotte

Right Regain

MATHIESON Chemicals

Saltville is located on the Norfolk & Western Railway, 37 miles from the line of the Southern Railway at Bristol, Va.-Tenn.

For all points in the South, freight differentials are overwhelmingly in our favor over any other plant manufacturing soda products.

A Southern Institution

TWO great factors in the rapid growth of the Textile Industry in the South have been favorable labor conditions and nearby sources of raw materials.

The only plant in the South manufacturing Soda products, our works at Saltville, Va., is the logical source of supply for Southern Textile Mills and may truly be called a Southern institution. During the twenty-nine years of its existence, this plant has saved Southern consumers millions of dollars in freight charges.

Let us serve you direct from the works in either carload or less-than-carload quantities.

The MATHIESON ALKALI WORKS Inc.
25 WEST 43rd STREET NEW YORK CITY

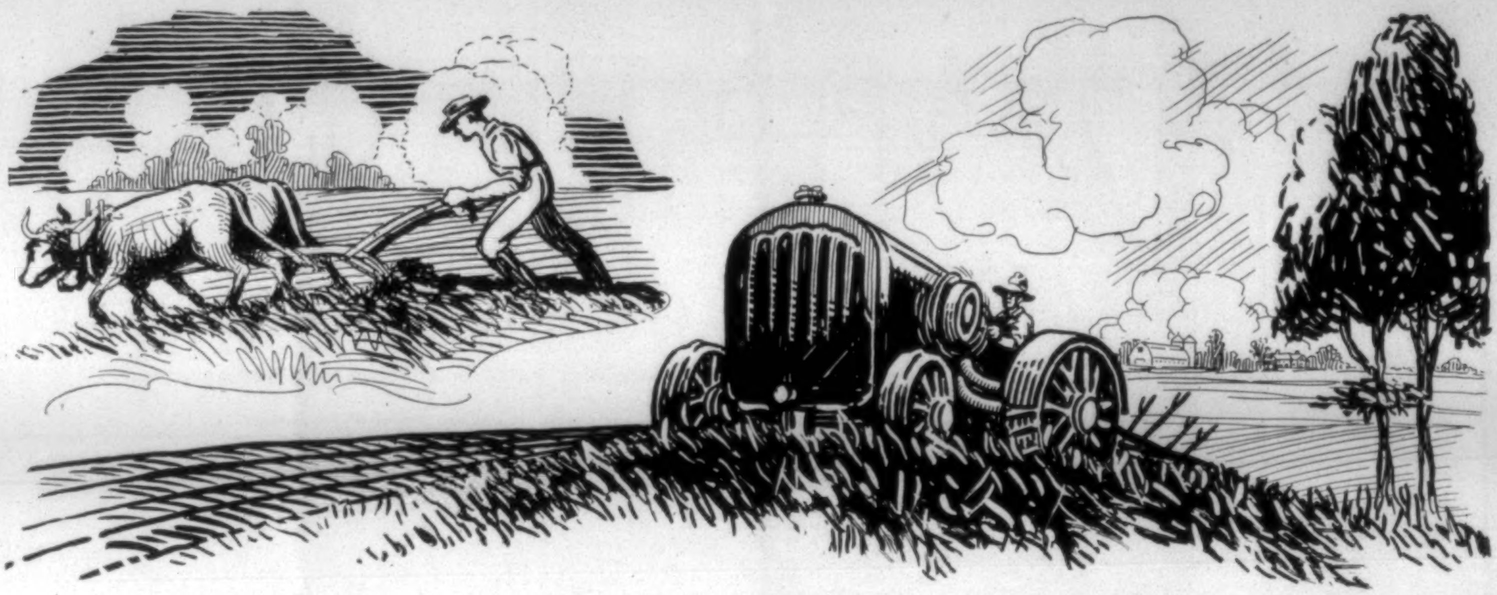
PHILADELPHIA
PROVIDENCE

CHICAGO
CHARLOTTE

EAGLE THISTLE PRODUCTS

Deal Direct with the Manufacturer

Bicarbonate of Soda
Liquid Chlorine~Caustic Soda
Sesquicarbonate of Soda
Bleaching Powder~Soda Ash



For Profits—Which Way Would You Plow Today?

TIME is constantly taming into reality our forefather's wildest guesses. The hundred years behind us are jammed and crammed with achievements that outbalance the previous sum total of progress since the signing of the Magna Charta.

Today no man and no concern is secure who feels a sense of security. Self complacency, satisfaction with tradition and antiquated methods, on the part of Northern mills, allowed the forward-thrusting South, with its clamor for change, improvement, **betterment,** to outstrip them in the race for quality and production.

Shall we stop now?

Narrow men and narrow concerns cannot survive under competitive pressure. Men with broad minds and ceaseless efforts towards improvement will replace them. It's the inexorable law of progress.

Textile manufacturing in the South has come to a breathing spell—temporarily. This breathing spell may, by thinking men, be made as profitable as a spell of capacity production. It is in fact the lull before the storm of huge restocking orders—

—and experience clearly points to TODAY as the time of all times to make all needed machinery replacements and improvements. Machinery manufacturers need orders now and will go to unprecedented lengths to give you service and terms.

The market is being stripped of textiles. When it is bare, stock-refilling orders will come in a deluge Which mills will be in the best shape to recover production and profit momentum:—the mills with overhauled, rebuilt or newly-replaced machinery, or the mills with wornout or obsolete machinery?

NOW IS THE TIME to get terms on new machinery, you'll probably never get again. Now is the time to thoroughly reorganize your mill and its machinery and get ready for the production drive that is bound to come.

Get into action **NOW.** Decide what improvements you will install. Tell the machinery manufacturers **NOW.** They will cooperate with you now as never before.

Keep the South Leading in Big Scale Production of Quality Textiles!

Better Equipment Campaign

This advertisement contributed to by the following firms:

Saco-Lowell Shops; Whitin Machine Works; H. & B. American Machine Co.; Fales & Jenks Machine Co.; Woonsocket Machine & Press Co.; Crompton & Knowles Loom Works; Lestershire Spool & Mfg. Co.; Easton & Burnham Machine Co.; Ashworth Bros., Inc.; Terrell Machine Co.; U. S. Bobbin & Shuttle Co.; Brown-St. Onge Co.; John Hetherington & Sons, Ltd.; Textile Mill Supply Co.; Charlotte Mfg. Co.; Howard Bros. Mfg. Co.; B. S. Roy & Son Co.; Hopedale Mfg. Co.; Carrier Engineering Corp.; Barber-Colman Co.; The Root Company; Henry L. Scott & Co.; R. I. Warp Stop Equipment Co.; Hyatt Roller Bearing Co.; The Bahnson Co.; Cooper-Hewitt Electric Co.; Parks-Cramer Co.; Steel Heddle Mfg. Co.; H. W. Butterworth & Sons; Fafnir Bearing Co.; Franklin Process Co.

SOUTHERN
TEXTILE BULLETIN

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VOLUME 26 CHARLOTTE, N. C., THURSDAY, MAY 8, 1924. NUMBER 10

Modern Textile Machinery and Equipment

By Earle R. Stall, of J. E. Sirrine & Co.

THE textile industry has reached the point in competition where an old plant cannot compete with the modern mills unless it is in good physical condition. Also, if it does not have good machinery and equipment it cannot be operated except at a loss and most of the old plants, which have not already been revamped and modernized, have come to the time when improvements are not only advisable but are absolutely necessary. Space will not permit the going into this in detail, but it is the writer's purpose to mention a few outstanding facts which are of importance to the manufacturer who has obsolete equipment and to outline, only in a general way, some of the advantages of using modern equipment such as is to be found inside of an up-to-date mill—to say nothing of the importance of a correctly laid out plant and one of proper design and construction.

From what may be called the real beginning of the textile industry—that is the time when in ancient days the family supplied its own needs by using skins and furs or from pieces of grass tied together and interlaced—there has been one constant development. When the cotton plant became known and man learned of the uses which could be made of its fibres, as well as the uses of wool, he accomplished the purpose of securing length and strength by twisting the fibres together and drawing them out by hand until this method was gradually improved and the old spinning wheel, which is occasionally seen now as a relic, came into use. The idea of cleaning and paralleling the fibres developed, likewise, passing through the wire brush hand carding methods up to the time of the crude carding machines. The gradual development of textile machinery can be traced with much interest from the period of hand power through the time when animal power was used, then water, followed by steam and then electricity. After the invention of machines and with knowledge of power, other than by hand, the idea of group manufacturing was a natural one and this led up to the establishment of the textile mill. Inventions, too numerous to mention, have all had a direct bearing on the perfecting of our present day highly standardized textile machines. All through this advancement period the original principles of carding, spinning and weaving have remained unchanged and are exactly the same today as they were then.

It has now been many years since the industry went through these great machinery changes and our modern equipment is the result of combined efforts and thought on the part of machinery builders and textile manufacturers working together for a common purpose. The mill man realized the need for a machine for doing a certain thing and the machinery builder applied his art towards getting a mechanical contrivance to accomplish this end. With the development of the machines came foundries and shops and then up-to-date tools and modern shop methods. With these facilities, along with the experience and thought obtained in the years past, machinery has been greatly improved within the last 30 years. In this period came such inventions as the revolving top flat card, the automatic loom, the warp tying machine, and numerous others, as well as the development of economical power apparatus and electricity.

Where Profits Go.

(This is a conservative statement of what may actually happen in mills making a profit of ⅛c per yard of cloth. Many mills made much less during 1921 and 1922.)

When the firemen save one wheel-barrow of coal the mill gains the profit on 14 cuts of cloth.

When a weaver makes one cut of seconds the mill loses the profit on 4 cuts of cloth.

One dead spindle in the card room costs the mill the profit on from 2 to 6 cuts of cloth.

Each pound of white waste put into sweepings costs the mill the profit on 4 cuts of cloth.

When a draw-frame roll is spoiled the mill loses the profit on 6 cuts of cloth.

Re-drawing one warp costs the mill the profit on 15 cuts of cloth.

When a shuttle is broken the mill loses the profit on 15 cuts of cloth.

The spoiling of one reed costs the mill the profit on 25 cuts of cloth.

IN A 100,000 SPINDLE MILL

When spooler boxes continually contain one pound less than the standard amount of yarn, the mill loses the profit on 2 bales of cloth each week.

When the cuts average one yard short of standard the mill loses the profit on 19 bales of cloth each week.

In the spinning room the stoppage of an entire alley for doffing, costs the mill the profit on 30 bales of cloth per week.

An average loss of 5 minutes per day through tardiness, "washing up" early, etc., costs the mill the profit on 40 bales of cloth weekly.

When the cloth folders measure 36⅛" for a yard the mill loses the profit on 50 bales of cloth each week.

When the cloth is apparently of correct weight as baled, but the moisture content is 1% below normal the loss amounts to the profit on 50 bales of cloth weekly.

When yarns average a half number heavy in a print cloth mill it costs the profit on 75 bales of cloth weekly.

If through the co-operation of the overseers and employees the waste can be reduced 2%, the saving is equivalent to the profit on 40 bales of cloth weekly.

A 7% increase in production will reduce the manufacturing cost by one cent per pound on print cloth. One cent per pound of cloth will pay for all the bobbins, shuttles, reeds, harnesses, starch, teaming, oil, belting, and roll-covering required by the mill.

Reprinted from Circular by Ralph E. Loper & Co., Fall River, Mass.
Cost Engineers

There are vast differences in opinions—and probably always will be—as to details in processes, methods and equipment for making yarn and cloth but it does not seem likely that there will be much departure from the processes of carding, spinning and weaving as we have them today and it is for this reason that the use of the best equipment is of such great importance. A manufacturer who is familiar with modern plants has but to visit one of the older mills to fully realize the improvements which have been made in the general design and efficiency of textile machinery within recent years. The superiority of up-to-date machinery is well recognized and by comparing figures as to speeds, production, upkeep, manufacturing costs, and the like, the economy and advisability and necessity of replacing obsolete equipment becomes very apparent.

If a new machine is properly kept up it can be operated for a number of years without any decrease in production. After years of use, however, the ordinary repairs are not sufficient and its productive capacity decreases, this decrease becoming greater as the machine gets older. The efficiency of the machine is lessened, the quality of product is lowered, there are more breakdowns, increased repair costs, and the production suffers on account of slow speeds and stoppages and all this results in greater manufacturing costs.

The machinery builders have studied the manufacturer's needs and have experimented, remodeled and redesigned patterns so that numerous parts have been simplified and unnecessary parts eliminated. The machinery builders are ever trying to improve their own inventions and are on the lookout for new ideas and for devices invented by practical mill operatives. They have gotten their shops in such position that they have proper tools, efficient methods and organizations for turning out accurately finished work at high production. The modern shops have specially designed tools for milling and planing the fitting parts, for properly fluting steel rolls, for cutting gears by machine and numerous other things, all of which enable the producing of equipment which does not have to be filed, changed and made to fit by the erectors on the job. The

(Continued on Page 38)

Relation of Fluidity to Sizing Value of Starches

W. A. Nivling, Huron Milling Company, Boston, Mass., before National Association of Cotton Manufacturers.

AS the terms "Fluidity" and "Viscosity" are used somewhat interchangeably to denote one of the service qualities of starch, a brief explanation of these terms and of methods used for measuring them should be of interest to the textile manufacturer. The description which follows is offered for the purpose of clearing up and answering some questions that the textile manufacturer brings up in discussing his sizing problems either within his own organization or at conventions with others having similar interests.

What is meant by fluidity?

What is meant by viscosity?

What purpose do they serve?

Fluidity.

Fluidity expresses rate of flow. As applied to starch solutions used for sizing or finishing, the term fluidity is used as an index or measure of the readiness or freeness with which the so-called starch solution will flow through the pipe to the machine where used. It determines also whether the starch solution will penetrate into the recesses or be merely pasted on the surface. Fluidity is one measure of service quality.

Viscosity.

Viscosity denotes the adhesive quality. A solution that is not viscous, is not adhesive. Viscosity may be defined as the reluctance to flow, or the resistance that one particle of a liquid meets in flowing past its neighboring particle. It is the clinging property of a liquid, and determines the amount of sizing that will adhere, for it must be understood that a solution may be very concentrated and freely flfluid, and yet in the sizing operation will not adhere to yarn in satisfactory amount, unless it is viscous. Viscosity is measured as relative mobility but is more accuraately defined as stickiness or gumminess in contra distinction to mere thickness.

Viscosity obviously will vary with concentration or percentage strength. It is, however, a property of liquids quite aside from and independent of concentration. Viscosity is, therefore, not at all dependable as a measure of the concentration of starch size conditions, but it is a decidedly valuable measure of the sizing quality of any starch solution. Unfortunately at the present time the same instruments are used to measure both viscosity and fluidity. Present day viscometers do not, therefore, definitely distinguish between these two properties.

Comparison of Fluidity and Viscosity.

Fluidity indicates convenience.

Viscosity indicates service quality for a particular need.

As an example: The service value of lubricating oils is dependent primarily upon viscosity (in special cases high fluidity is also necessary). Highly viscous oils or greases are necessary for lubricating heavy slow moving journal bearings, but for high speed journal bearings a high degree of fluidity is essential in order that the oil may flow freely and quickly to the point where it is needed. The need of both fluidity and viscosity is evident.

Oils are characterized by being viscous but not adhesive. Salt solutions in general by being neither viscous nor adhesive.

Starch solutions by being both viscous and adhesive.

With lubricating oils fluidity is obtained at the sacrifice of viscosity, but with starch solutions note that by using highly modified starches and increasing the concentration of the solution, viscosity and adhesive value may be increased almost without limit without changing fluidity.

Means for Measuring Viscosity or Fluidity.

Viscosity and fluidity measurement are relative and are compared with the viscosity or fluidity of water. The rate of flow (fluidity) or the adhesive quality (viscosity) is generally measured by one or the other of two types of viscosmeters (or by the shorter spelling, viscometers).

In one type of viscometer, a comparison is made of the time required for a specified volume of liquid to flow through a tube of small diameter, and the time required is compared with the time required for an equal volume of water of the same temperature to flow through the same instrument. These may be designated as flow type viscometers.

Viscometers of this flow type have a cup with a tube or small bore opening into the bottom of the cup. This bottom opening is closed by a valve, cock, or stopper, and when operating, a stop watch is used to note the elapsed time required to fill to the desired volume a measure cup placed beneath the delivery tube.

Effect of Temperature on Viscosity Measurements.

As temperature affects viscosity measurement it is absolutely necessary that comparative tests always be made with the fluids at the same temperature.

An ordinary funnel with a long handled plug may be made to serve as a crude form of viscometer, but instruments of precision are made of metal cups with delivery tube and cup carefully machined and calipered to the thousandth part of an inch and with the cup surrounded by a water bath, so that the temperature may be kept practically constant while the test is being

(Continued on Page 14)

"WE'VE GOT IT"

The Only Real, Reliable, absolutely fool proof, satisfactory "AUTOMATIC BUNCH BUILDER" on the market

Before Installation Holcomb Bunch Builder 50 yds. of waste

After Installation Holcomb Bunch Builder 10 yds. of waste

Our Guarantee

The "HOLCOMB" Automatic Bunch Builder is the result of years of development work by a practical mill man. It is fully perfected and has long been in successful operation in a score of mills. It is fool proof; has no wearing parts to get out of order; requires no oil; builds the bunch automatically only when the ring rail is lowered to doff; and requires absolutely no attention of the operator for setting or resetting. Remove the "personal element!" Remove the waste! Saves 80 per cent. Write now for our proposition.

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PONTAMINE FAST BLUE 2GL

A direct color, in a new shade of blue, possessing excellent fastness to light

In addition to its excellent light-fastness property, this dyestuff resists the action of alkalies, acids and perspiration.

Pontamine Fast Blue 2GL is readily soluble which, combined with good penetration, recommends its use in padding. It is useful also as a shading color in the one-bath process as it leaves the tnimal fibres practically white.

When discharged with sulfoxydes, clear colored discharge effects are possible.

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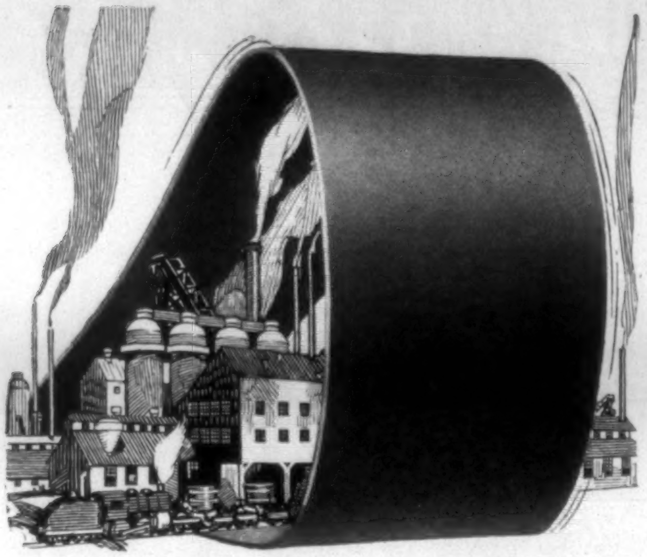

So that you may *know*

ONE belt gives you years of unfaltering service. Another is useless after a few power-wasting months.

There is a mighty difference between them. Yet when new they look alike. Appearance cannot tell you which will wear. How will you *know?* This was the problem which years ago led to the Graton & Knight Standardized Series—the one sure guide to definitely known belting service.

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The Standardized Series is a grouping of brands of Graton & Knight Leather Belts. These brands include exactly the right belt for practically every transmission job. Each brand is made to rigid specifications for lasting service on its particular type of drive.

Each brand is so carefully standardized throughout its manufacture that two belts of the same Standardized Series brand are always alike.

Graton & Knight Standardized Series gives you always the right belt for the right job. Tough, pulley-hugging belts of honest, rugged leather. Painstakingly made to give better power transmission.

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Standardized
LEATHER BELTING

Relation of Fluidity to Sizing Value of Starches

(Continued from Page 12)

made. Chemical supply houses sell viscometers of the flow type calibrated and standardized under certain established trade names such as Redwood viscometer, Saybolt viscometer, Engler viscometer, Scott viscometer, Bingham & Green plastometer.

Measuring Viscosity By Power.

The power type of viscometer is another form of instrument used for measuring viscosity or fluidity. In this type of viscometer a bob, pendulum, or cylinder, oscillates or revolves while submerged in the liquid being tested. The force necessary to maintain the motion is compared with that necessary to keep the same bob, pendulum, or cylinder, in motion while submerged in water or other standard fluid. This form of viscometer measures the amount of power required to force a body to move through the liquid, or the drag the liquid will exert toward pulling the body along, if the liquid is revolved and the pendulum suspended in such manner as to permit limited movement. It is evident a pendulum or disc will revolve more slowly, or more power must be exerted when the pendulum or disc is submerged in a viscous liquid than in a limpid liquid like water.

Instruments of this type are sold under the name of Stormer viscometer, MacMichael viscometer, Doolittle viscometer.

The viscometers already described are frail. They are used by chemists in the laboratory and great patience and skill are necessary in preparing both the sample and the instrument for the test. The instrument must be immaculately clean. It must set so that the service element is perpendicular. The fluid to be tested must be at the correct temperature, and the stop watch used to measure time must be accurate and manipulated with precision. Precautions against drafts of air and change of temperature must be taken.

The sample to be tested may not require any preparation other than to be heated uniformly throughout, as, for instance, in testing the viscosity of oils, syrups, or molasses. Determining the viscosity or fluidity of starch required additional effort, and many additional precautions.

The viscometers already mentioned are those most generally known and used. Other methods and instruments may be used for determining viscosity. An instrument that is rugged and fool proof, one that could be used by the factory operative and not require a chemist to manipulate, would be of service in the mill, so that when the liquid is prepared for use the operative could test his material while using it, and know whether it is up to standard.

Preparing Starch Samples for Fluidity Test.

Starches are bought in dry powder form and must be weighted and dissolved to make them fluid for the test.

The residual moisture of starches may vary from practically none to 20 per cent, or more, the starch sample must therefore first be tested to determine the moisture and due allowance made for the water content. The samples must then be accurately weighted with proper allowance for the water it contains dissolved in the proper amount of water. Solution may be affected either by heating or by the addition of chemicals. If chemicals are added to the water used for dissolving the starch, the proportion of chemical must be accurately measured. Another factor of great importance to be reckoned with is that so-called starch solutions are never true solutions. They are really mixtures of partially dissolved starchy matter in suspension in that portion of the starch which has dissolved. Furthermore, the suspended and undissolved portion is of skeleton-like structure, as will be shown later by photomicrographs. These skeletal forms impede the flow of the starch solutions, and too vigorous stirring of the sample under test will break up this skeletal structure, change the rate of flow, and thereby affect results. Care must, therefore, be exercised and even the amount of stirring must be regulated. There are several methods of preparing the sample for the viscometer test:

A per cent or 10 per cent solution of starch, according to whether the starch be thick boiling, or thin boiling, may be made by heating the starch with water until it is dissolved under conditions that may be duplicated. This method more closely approximates the condition under which the starches are to be used than the method next to be described.

Anohter method, one that uses chemicals for dissolving the starch, is given in the "Journal Society Chemical Industry 1907," page 501; see also the orginator's book, "The Materials Used in Sizing, their Chemical and Physical Properties Chemical and Physical Properties," by W. F. A. Erman, of the Manchester School of Technology, from which the following is taken:

Three-fifths grammes of starch are washed into a 250cc graduated flask, with the acid of 230cc of cold distilled water. Fifteen cc of exactly 10 per cent sodium hydroxide solutions are then rapidly run in from a burette, and the flask is filled up to the mark with distilled water and is shaken gently, but continuouly, until the starch has gone into solution, after which it is allowed to stand for twelve hours. Finally, the viscosity of the solution is measured in the viscometer.

Note Erman's further instructions as to control of chemical and amout of stirring, I quote as follows:

In order to obtain concordant results, the strength of the caustic soda solution should be exactly 10 per cent as even a small variation will give you a different viscosity. Every time that a delivery of starch is to be compared with the standard, solutions of both standard and delivery should be tested.

The solution should at all times be agitated as little as possible, and the solution that has run through the viscosimeter should not be used again. A small rise in temperature causes a considerable lowering of the viscosity; consequently care must be taken to ensure constant temperatures during the time of the tests.

In both methods given above for dissolving the starch the first using only water and heat, and the second method using water and the chemical, caustic soda, caution is given so that every step is carried out with precision and in exactly the same manner each time. These precautions are essential or concordant results cannot be obtained.

The above makes clear why it is difficult for two different operators to obtain the same results on starches. Each operator may be able to get duplicate and concordant figures which enable him to form accurate conclusions as to the similarity or dissimilarity of the several samples of starch, but the same sample of starch tested by two different operators may not give the same test figures. They may have used different methods and different instruments. It is evident, therefore, that the starch manufacturer must surround his tests with every aid to precision or he cannot deliver successive lots of starch, of uniform fluidity or viscosity.

The same instrument and the same method of determining viscosity might be used by every starch manufacturer or every chemist, but even if this were so, which as a matter of fact it is not—the arbitrary features of manipulation, as for instance, the stirring of the sample, may give somewhat varying test figures. The point to be borne in mind is that the same operator, working under the same conditions, will get the same results.

Fluidity or viscosity figures are, therefore, arbitrary expressions, and must be compared to a type. The figures denote measured relative freeness of flow.

To sum up the foregoing note then that "30 fluidity" on a brand of starch means

(a) That a given volume of liquid will flow in 30 seconds.

(b) That in a specified unit of time, 30 cubic units of liquid will flow.

The same applies to other figures used, such as 50 fluidity, 70 fluidity, etc.

All such figures are arbitrary and refer to the reading given by particular measuring instrument and a particular routine of procedure. Water will show a different figure for each instrument. Such figures should be recognized as "Arbitrary viscosity or fluidity" figures applying only to the specific instrument and the particular set of conditions used for preparing the sample. Arbitrary viscosity figures do not admit of accurate comparison.

Specific viscosity figures are obtained by dividing these arbitrary figures by the figures obtained for the flow of water under the same conditions in the same instrument. Specific viscosity figures do admit of accurate comparison.

Starch Owes Its Adhesive Quality to Viscosity.

Viscosity Constantly Changing.

Starch solutions are unstable. There is a continuous change of the very important property of viscosity due to change of temperature, to chemicals added to the size kettle and to greases and size compounds used. These will be taken up later. First let us consider the nature of starch itself.

Character of Starch Solutions Used for Sizing and Finishing.

Mention has been made that starch solutions are not homogeneous. The reason for this is explained by the following description which unfortunately is somewhat technical, but unavoidably so, in explaining the behavior of starch solutions.

Starch grains are the reserve material formed by many plants and stored up as food for later use in feeding the new growth of the succeeding plant. Starch is a condensation product from the sap of the plant, coming originally from carbon dioxide chemically combined in the plant by the action of sunlight. The amount of condensation in changing the liquid sap to the reserve material, starch, differs in different plants, and in the same plant under different conditions. It also appears that in certain seeds or nuts a further condensation takes place whereby a much more resistant and more difficulty soluble reserve material is formed. In nuts like the walnuts for instance, the reserve material is the hardened wall. All of these plant reserve condensation products are a form of cellulose, which in chemical percentage proportions are identical, but when considered with reference to use we find these various cellulose products vary widely in certain physical behavior, and we must manipulate them according to their individual peculiarities. Starch is a cellulosic reserve material stored in the seeds of some plants, in the roots of other plants, and, oddly enough, we find in the Sago Palm, the starch is deposited in the tree trunk. The starch that forms in the seeds differs in appearance and in behavior from the starch that forms in the roots of plants. Note the variation in the size of the starch granule from the same source and also from different sources.

The Composition of Starch Granules

While grains of sand or grains of chemical substances like sugar, salt, etc., may be uniform throughout, with starch grains such is not the case. Each individual starch granule differs throughout. The outer wall is more condensed than the inner portion, and behaves differently. Starch granules are stratified. By that is meant there are layers that are soluble only with great difficulty and there are layers that are easily soluble. Every granule is surrounded with an outer layer or envelope of difficultly soluble material known as amylopectin, and an inner portion that dissolves easily. The inner portion has been given various names, but for convenience it will be referred to in this description as amylose. This inner substance, amylose, is soluble in cold water and makes a relatively permanent clear colloidal solution. The outer portion and the more condensed portion of all starch granules, amylopectin, not only does not dissolve in cold water but forms either no solution at all in boiling water, or at best only a partial solution with boiling water, and as the temperature falls below that of boiling, more and more amylopectin goes out of solution. This may be shown by boiling a very weak solution of starch in water and letting the solution stand. There results a settling out of the undissolved portion. This is at first difficult to see as the portion that settles out is almost transparent but after longer standing it becomes opaque. Just here it is of interest to note that the bulk of this precipitate which settles out from starch to which water has been added and heated, varies with different starches, and that the bulk of the precipitate that settles from say a one per cent solution of potato starch differs from the bulk or volume of the precipitate that will settle from a one per cent solution of wheat starch, rice starch, or corn starch. This has been investigated by Harrison who has shown that the measure of bulk of these precipitates may be used

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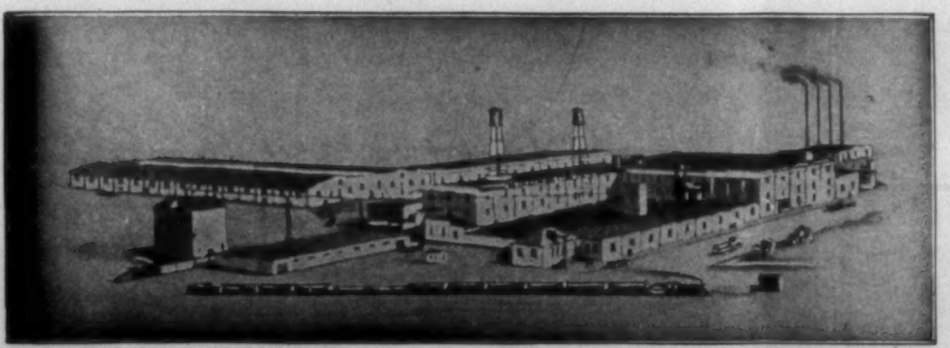

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for determining the stiffening power of different starches. (See W. Harrison Journal Society Dyers and Colorists 1911, 27, 84, under the heading "Method for Determining Stiffening Power of Different Starches.")

When starch granules are suspended in water and the water heated to 140 degrees or over, the granule begins to swell. The outer envelope is penetrated and the granule swells to several times its original size. The water enters and dissolves the inner substance, amylose. If a portion of the liquid be examined under the microscope, the swollen and burst but undissolved envelope or outer sac, which previously covered the starch granule, will be seen floating in the syrupy starch solutions of the inner substance amylose. By repeated washing with water and allowing the empty sacs to settle and pouring off the top water these two portions, amylose and amylopectin, may be separated, the top water carrying the soluble part, amylose. The sediment will be amylopectin.

Effect of Cell Sacs on Fluidity.

In starch solutions of over two per cent these cell sacs will if examined through the microscope be seen to occupy such a percentage of the space as to crowd each other, thereby affecting the flow. The bulk of these sacs varies with the different starches and also with the same starch at varying stages of maturity.

A starch solution is very similar to the mixture one would have if they filled a vessel with varying sized birds' eggs, and fill the voids between the eggs with water. Cracking the shells would let the egg albumen which corresponds to the amylose of the starch granule dissolve in the water. The empty shells correspond to the amylopectin of the starch granule, the cell sacs. Obviously, those starch envelope sacs, in one case, or egg shells in the other, will affect the rate of flow or the ease with which the mixture can be stirred. The albumen of the egg, like the amylose of the starch grain, forms a thick viscose solution in which the shells in one case and the empty starch sacs in the other are suspended. If now the mixture is violently stirred, as, for instance, with an egg beater, these shells will be broken up and ultimately reduced to small particles like grains of sand, with the results that they no longer crowd each other and impede the flow. The solution will now flow more freely. The same thing happens with the starch solution. The viscosity of a starch solution is, therefore, in large part fictitious. By violent agitation either by continued vigorous stirring or by long boiling, these sacs are broken down and the viscosity thereby lessened. A large part of the "running down" of starch size solutions is obviously due to agitation. In the thick viscose starch solutions used for sizing the change or lessening of viscosity is gradual or rapid in proportion to the density and thickness and also to the violence of the agitation. And further in proportion to the time and temperature to which the starch mixture has been heated. Starch size solutions suffer much greater thinning if repeatedly passed through pumps of the centrifugal type than if passed through pumps of the rotary or plunger type. Therefore, because of their churning motion centrifugal pumps should not be used for the continuous circulation of size.

Differences in Starches.

It is characteristic of the Root starches, like Arrowroot and potato after heating for 15 to 25 minutes is which happens to be neither a root starch nor a seed starch, that their solutions lose viscosity by boiling very much more rapidly than starches from the cereals, barley, rice, wheat or corn.

Harrison in his article already referred to on "Measuring the Stiffening Power of Starches" corroborates this statement relative to the greater sensitiveness of root starches by reporting his experiments with potato starch as follows:

The results for potato starch heated by the naked flame were very variable since a solution having a viscosity of 250 had the viscosity reduced to 50 by shaking for one minute at 16 degrees and to 20 by shaking to the same extent at 90 degrees C., it is evident that the unequal boiling of the solutions accounted for the great variations in the results.

The peculiar maximum viscosity aftre heating for 15 to 25 minutes is of practical importance in the preparation of finishing pastes.

All starch solutions are, therefore, at their maximum viscosity in from 15 to 60 minutes after reaching the boiling temperature. After having reached their maximum viscosity the starch sizing solutions become thinned by continued boiling or other agitation primarily by reason of the cell sacs being broken down. After these are all broken down the further loss of viscosity will be very gradual unless chemicals are present or waters enters the vessel from the steam used for boiling.

Maintaining starch solution at or above the boiling temperature will increase the amount of starch that goes into solution and therefore adds to the adhesive quality. It will, however, lower the viscosity and therefore the amount that will cling to the yarn, thus necessitating a fortifying by increased percentage of starch or by adding something of a viscous gummy character to increase the viscosity.

Adding New Size to Old.

Where a newly made batch of size is to be added to that already in service, they should not be mixed together in the size box. Notwithstanding the proportions of starch to water may be the same, the two solutions will differ widely in viscosity. They should, therefore, be blended in by adding the new to the old in a blending kettle, and the combined new and old size should be continuously added to the size box rather than intermittently. This avoids a sudden or wide change in

Humpity-Dumpity looked all right as he sat on the wall~

—and various types of mill receptacles look all right until they have had a few hard falls.

LEATHEROID RECEPTACLES retain their good looks year after year because the quality of material and workmanship goes all the way through.

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the viscosity and thereby keeps the amount of sizing applied to the yarn more uniform and even.

The very quick drop in viscosity cited above where 250 viscosity was reduced to 40 or to 20 viscosity with one minute shaking does not apply at the same rate in textile sizing solutions. In the test cited, the chemist was working with a very thin solution, just one per cent of starch, whereas, in textile sizing solutions of from eight to twenty per cent strength of starch are generally used. The thicker and denser the starch solution, the slower will be the breaking down of the viscosity. From one to three hours of boiling or agitation would be required on the thick viscous solution used for sizing to effect the change in viscosity that in the experiment with a one per cent solution required only a few minutes of violent shaking.

Temperature for Sizing—Slow Congealing.

The natural or unmodified differ widely, not only in respect to their sensitiveness to thinning by long boiling, but also in respect to their rate of congealing when the temperature of their solutions fall below that of boiling.

Some starch solutions when of the density and viscosity suitable for sizing lose their fluidity and set to a jell state immediately upon a fall of temperature from that of boiling to 180 degrees F. to 160 degrees F. Other starch solutions at the same concentration will remain fluid for a much longer time even though the temperature be reduced to 150 or to 130. The difference in behavior depends upon the nature of the starch, its source, and the amount and kind of processing by the manufacturer, and also upon long boiling and also on the amount of grease and size compounds that have been added during boiling. Solutions of thin boiling starches congeal more slowly than thick boiling, hence their increasing peculiarity. Just how much slower depends upon the nature and amount of conversion to which the starch has been submitted. Best sizing results accompanying slow congealing size.

Natural or Unmodified Starches.

Starches from different sources differ in respect to necessary time of boiling and in the rate of congealing.. This difference in behavior in the natural or unmodified starches is due primarily to variations in percentage of amylose to amylopectin. The Journal of the Chemical Society 1924, 123,2666 reports the work of A. Ling and R. Nanji giving a review of the earlier researches on the chemical composition of starches and of their own very recent findings and state that while in all starches they find the ratio of amylose to amylopectin to be 2 to 1, yet that the absolute percentages of these two constituents may vary widely between different starches according to the amount of other constituents present, one of which is of the semi-cellulose type. This is of interest in connection with what follows in reference to keeping size at the boiling temperature. Ling and Nanji set out that with fall of temperature a polymerization takes place resulting in the soluble portion becoming insoluble.

High Temperature Essential for Sizing.

Earlier under the topic "Composition of Starches" it is stated that the amylopectin of natural starches forms only a partial solution even at the boiling temperature, and that when solution temperature falls, a large part of the starch granule goes out of solution. The size in the size box may be boiling and have a temperature of 210 to 212 but by the time it leaves the nip of the last squeeze roller the temperature may have fallen to 170 to 160 or lower. This is of moment in connection both with loss of fluidity and also of adhesive value from starch going out of solution at the lower temperature. Obviously then that starch will yield the best sizing, which, while its solution is sufficiently viscous and concentrated as to apply a sufficient amount of sizing to the yarn, yet will congeal so slowly with fall of temperature as to remain fluid at the low temperature of the last squeeze rolls.

It is the author's judgment that the size should be kept at the boiling temperature, but violent boiling should be avoided. Violent boiling robs the size of viscosity. What is desired is the high temperature of boiling and just enough agitation to keep the size rolling over so that the temperature may be as nearly uniform as possible in all parts of the size box.

A size box jacketed by boiling water so as to hold the temperature and by this indirect method of heating to avoid the water of condensation resulting from the direct injection of steam, would be a decided improvement in slasher equipment. The advantage of hot water over steam in the jacket is that hot water will not cause scale formation, which is almost unavoidable where steam is used in the jacketed size box.

Sizing at Sub-Normal Temperatures

Some have recommended sizing at temperatures below that of boiling. In our opinion this is of questionable benefit. Starch size at 160 to 180 is inferior to size at 205 to 210, except that it has a higher viscosity at 170 than at 205, and less agitation from boiling results when size is kept at the lower temperature. The lower temperature, therefore, admittedly conserves viscosity. It is, however, preferable to obtain this added viscosity from an additional amount of starch rather than by sub-normal temperature.

Temperature Controls.

Temperature controls serve their most useful purpose by admitting steam when the temperature begins to fall below the necessary point to keep all the starch in solution and by shutting off the steam when necessary to avoid violent boiling rather than by keeping size at 170 or 180 or at 185. Boiling in the size in addition to keeping a higher per cent of starch solution serves a useful purpose in equalizing temperature.

Penetration.

Contrary to the generally accepted theory, the application of starch

(Continued on Page 36)

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The Best Materials Obtainable Make Up Our Products

Give us a trial on Cylinder and Doffer Fillets. This will satisfy you as to the merits of our Card Clothing.

The River That Failed

Some years ago a textile concern built a new mill on the banks of a small stream. It was an excellent location, so far as the owners could see—plenty of water, good transportation facilities, close to raw materials and close to their markets. It was, in fact, considered such an excellent location, that other mills followed their example, and soon there were a dozen plants near by.

The textile community which sprang up around these plants grew rapidly as the demand for labor increased. Needs of the community made heavy demands on the only available source of water supply—the river.

When that small stream had gradually dwindled to such size that it could hardly be called a river, the concerns which had originally selected it as a mill site, knew they had made a mistake. This location, for so many plants, had been selected without foresight.

"Building with Foresight" is an engineering principle which Lockwood-Greene engineers apply to the selection of a site as well as to the design of the mill. Years of experience in practically every phase of textile engineering and management, give Lockwood, Greene & Co. a tremendous advantage in helping clients to avoid costly mistakes.

Lockwood-Greene service is complete. It begins and ends wherever necessary, from the preliminary study of the project to the finished plant.

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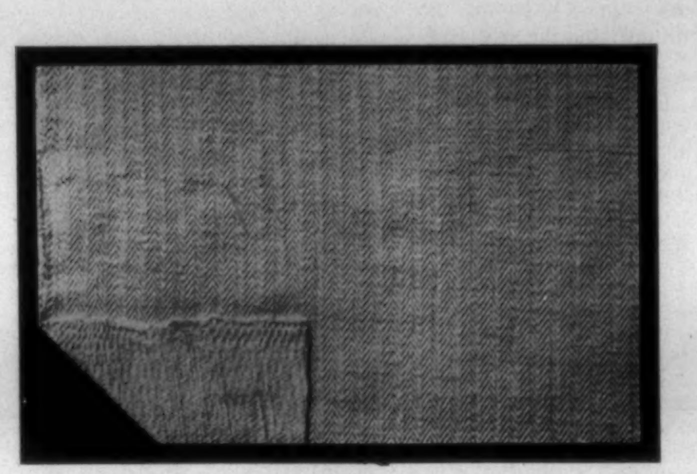
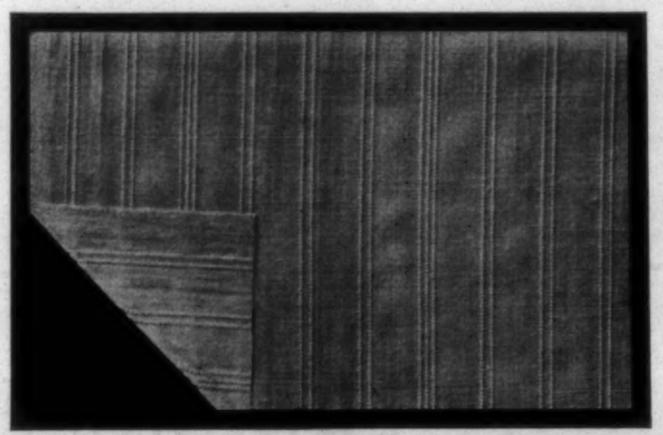


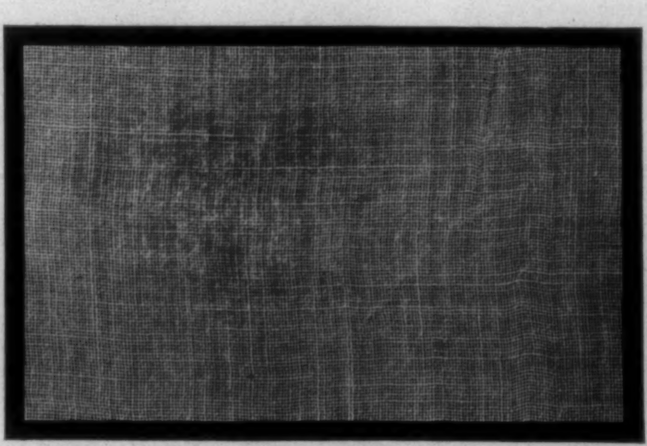
Sample No. 10.—Coutil or Corset Cloth.

Herring bone twill. Finished width, 54 inches.
140 ends and 99 picks per square inch, finished.
Warp yarn, 62/2 bleached. Filling yarn, 24s bleached.
Weight, 1.59 linear yards (2.38 square yards) per pound, finished.
Calendered.



Sample No. 11.—Corded Shirting.

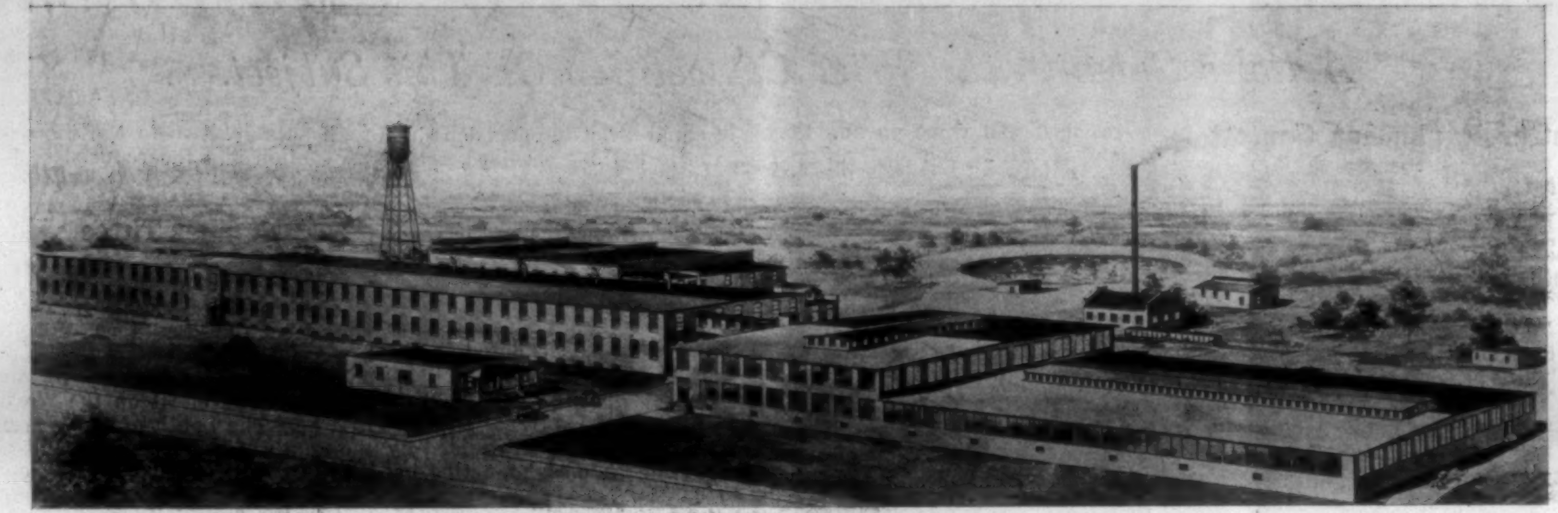
Plain woven. Finished width, 31 inches.
118 ends and 96 picks per square inch, finished.
Warp yarn, 55s. Warp cord, 22/4. Filling yarn, 64s.
Weight, 5.46 linear yards (4.70 square yards) per pound, finished.
Bleached.



Sample No. 12.—Single Voile.

Plain woven. Grey width, 40 inches.
60 ends and 57 picks per square inch, in the grey.
Warp yarn, 53s, hard twisted. Filling yarn, 54s, hard twisted.
Weight, 9 linear yard (10 square yards) per pound, in the grey.
Unbleached.

Where Alexander Sheetings Are Made

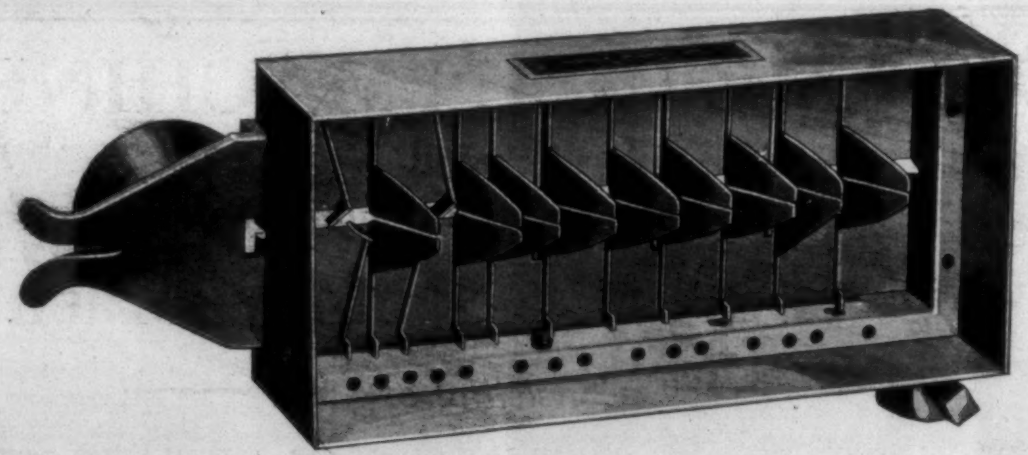


ALEXANDER MANUFACTURING COMPANY

The Alexander Manufacturing Company, of Forest City, N. C., are now manufacturing Alexander "BED SHEETING" and "BED SHEETS," these words being registered trade mark under which they are selling a very high quality of wide sheeting. The trade is universal in their approval of their goods and are among the best made in their class today. They are making these in the different widths—from 100 inches wide down—and are put up in both the gray and bleach, in pieces and in sheets, pillow cases, etc. The new weave room is part two stories—as shown in cut—and is 160 feet wide by 300 feet long. The spooling, warping, slashing and tying-in on the second floor; the weaving and finishing on first floor. The bleaching is done by the North Carolina Finishing Company, of Salisbury, at their Yadkin plant. Catlin & Co. are the selling agents for the Alexander Manufacturing Company.

Chemnitz Factories Specializing in Fancy Goods.

On account of high prices, the Orient and Russia have practially discontinued buying plain stape knit goods in the German market, Consul L. G. Dreyfus reports from Dresden. Their orders are now being placed in Czechoslovakia and Austria. The United States also has ceased to be a customer for plain hosiery. As result of this development Chemnitz manufacturers are turning more to the development of colored and fancy goods and endeavoring to keep the price on these lines cheap. Printed hosiery is in lively demand for foreign markets, and considerable business is being done in German markets. The glove manfacturers, although fully occupied at present, report decreasing orders together with some cancellations.



Mr. Knitter—Do You Realize Your Loss From Waste?

How often do your knitting machines stop because of slubs—heavy and light spots in the yarn?

Do you know the loss of production from this cause? Do you know the amount in dollars and cents—that is, lost in waste that is thrown under the cutter's table due to cutting out holes through the use of imperfect yarn?

Do you realize the difference in production between running good yarn and bad yarn? With labor high, even the same percentage of waste in manufacturing becomes a heavier charge against your costs. Are you taking the best means of meeting this situation?

The successful men in the production of knitted textiles are those who, under the pressure of high prices, make use of the most effective methods of avoiding waste in manufacturing operations.

A Knitter can cut down waste in his plant and increase his production by using the best grade of yarn—that is, free as possible from imperfections. If a lower grade contains even one more imperfection to the mile of 30/1, it means fourteen more imperfections to the pound—fourteen thousand more imperfections to the thousand pounds; one thousand pounds is a small quantity to the user of yarn. Fourteen more imperfections is a severe handicap in the manufacture of any product.

You can positively cut down the waste in production by equipping your winder with the Eclipse Yarn Cleaning Device. By using this cleaner, any grade of carded yarn can be made a ninety per cent better knitting yarn. You cannot appreciate this fact until after you have used the Eclipse Yarn Cleaner.

If you knit direct from cones, take this vital matter up with your "Spinner"—he can deliver you a better yarn.

Ask us to send you full information—or better still—we will send our representative to give you an actual demonstration upon your request. **When you write, please** mention the type of winder or spooler you use.

Eclipse Textile Devices, Inc., Elmira, N. Y.

Makers of

Automatic Yarn Cleaner, Automatic Stop Motion, Yarn Tension Device, Eclipse Van Ness Dyeing Machine

Advantages of Better Mill Equipment

Articles Submitted in Prize Competition On This Subject.

Better Equipment Contest

Up to the present time only five articles have been contributed to the contest for the best article on "The Advantages of Better Equipment" and yet there are thirteen prizes arranged as follows:

For best article	$50
Second best	30
Third best	20
Next ten best	10 each

There is a splendid opportunity for men of practical knowledge to win prize money.

In writing the articles the contestants should deal with the advantages of better equipment in each department; for instance, the writers should describe a modern opening and picking room with machines according to his idea and tell the advantages of such a room over an opening room in which the cotton is fed direct from the bale to the lappers.

When he comes to the spinning room he should describe a spinning frame equipped and driven according to his idea and show the increased production and quality that could be obtained over the old style frames.

We want the practical ideas of practical men and want no one to stay out because of bad spelling or grammar, as we will correct all such mistakes.

No article received after May 20th will be considered in the contest.

Contest Rules

1. Articles must not be longer than three full columns.

2. Articles must be signed with assumed names, but the real name and address of the writer must be known to us.

3. The subject, "Better Equipment for Southern Cotton Mills," will include anything that has a bearing upon the subject, but is intended to specifically cover the advantages to be derived from installing new and modern machinery. Special weight will be given to statistics or the results of experiences or tests.

4. Articles must be original and articles that include paragraphs or sections copied from other articles on this subject will be thrown out. The contestants and all of our readers will be requested to call our attention to any article that shows evidence of having been copied.

5. Articles will be published by us in the order received and the judges will be instructed that where two are of equal merit the decision shall be given to the one received first.

6. In mentioning carding, drawing, roving, spinning, spooling, twisting, warping, etc., machinery, the name of the builder of such machinery can not be given. This rule will not apply to special machinery.

7. No article that is received after May 20th will be considered in the contest and under Section 5 of these rules there is an advantage in mailing articles early.

8. The contest will be decided by seven practical men who, acting independently of each other, shall read the articles and give us their opinion relative to which is best and second best. A vote for first place will count (1) and a vote for second place will count (½).

9. The article receiving the largest number of the judges' votes will be declared the winner and its writer will receive $50.00. The writer of the article which receives the second largest vote will receive $30.00 and that of the third best, $20.00. The writers of the next ten articles will receive $10 each.

NOTE—It is intended that the articles shall show the advantages of better opening machinery, light carding, tape drive spinning, etc. with data relative to the increased production and the reduced cost of production.

Number Three

I note with much interest the staging of a campaign for better equipment in Southern mills. I sincerely hope and believe that this subject, if intelligently handled must have its effect on the powers that be. The South of today is not the South of yesterday and will not be the South of tomorrow. Hence the equipment of today will govern largely the financial success of that tomorrow.

We no longer construct mill buildings with an eye solely to first cost, but go in for permanency of material, light, space, convenience of operatives and machines. The economy of such buildings is no longer a question of doubt.

Only a few years ago we had with us the system of opening a bale of cotton as near the breaker picker as possible. And when this was consumed another bale, perhaps several (this depending on the number of machines to be supplied) was brought forward and the operation was repeated as often as necessary

H. & B. AMERICAN MACHINE CO.
Pawtucket, R. I.
Builders of Complete Equipments of
Cotton Opening and Spinning Machinery
Consisting of
HOPPER BALE OPENERS — CRIGHTON OPENERS — EXHAUST OPENERS
BUCKLEY OPENERS — ROVING WASTE OPENERS
SELF FEEDING OPENERS — FEEDERS — COTTON CONVEYING SYSTEMS
INTERMEDIATE and FINISHER LAPPERS
REVOLVING FLAT CARDS — DRAWING FRAMES (With Mechanical or Electric Stop Motion)
SLUBBING — INTERMEDIATE and ROVING FRAMES
SPINNING FRAMES and TWISTERS (Band or Tape Driven)
SPINDLES — FLYERS — RINGS — FLUTED ROLLS
Southern Office
814-816 ATLANTA TRUST CO. BLDG.
Atlanta, Georgia

to keep the mill of whatever capacity, going. The fallacy of this method was recognized by those in charge and almost with one accord we turned to hand mixing as many bales in a mix as space would permit. This system was frowned upon by some of the officials as requiring more help, but when the carding department, the speeder room and spinning department began to realize how much extra help they could spare for opening and mixing, the frown was displaced by smile, while a sufficient number of employees was transferred to the picker room pay roll and other surplus help was dismissed with a saving in cost per pound realized by the executives, we were convinced that the methods of opening, separating and blending cotton for textile products was in its infancy.

Limited space will not permit me to dwell upon the various stages of progress. The machinery builders have been accused of being slow to adopt new inventions. When one considers the necessary cost involved in changing patterns in use, along with skeptical officials who must be induced to purchase new machines, it is not surprising that some of the Southern mills have held fast to their equipment that has undoubtedly served its usefulness. We have witnessed in the past few years more improvements in opening and preparing of cotton with automatic machines than any other period since the advent of the so-called cleaning trunks.

Some years ago the Crichton opener suffered a knockout blow owing to lack of intelligent improvement and operation. Today we have this almost indispensable vertical opener in single, double and triple tandem, attached to bale breaker and controlled by automatic feed. At one time this process was looked upon as simply mixing cotton and now we open, mix, clean and separate without injury to stock and deliver in bins convenient to picker room or direct to machines, automatically controlled in a fluffy and almost perfect state for the picking department.

Pre-war statistics showed compressed cotton at a density of about 24 pounds and today at 35 pounds of cotton per cubic foot, and yet some mills attempt, with a single action of an inadequate machine to open this cotton and prepare for picking without injury to the staple and strength. Is it any wonder that New England still contends that the South will never be a serious competitor in the very fine goods markets?

Indeed the field today is not very inviting to one of uncertain mind and drifting thought and the treasurer whose purse strings are tied to old machinery has a real cause for worry.

Four years ago the mill where I am was operating pickers that had run for 20 years. The supply expense for ten machines averaged $75 per month for two years of record for upkeep and repairs alone. A 7½ horsepower motor was required for individual drive. After installing latest model machines fully equipped with ball bearings, a 5 h. p. motor for each machine (except vertical opener) does the work and the supply expense has been reduced to around $5 per month. We get better carding, save card clothing and have less card waste as a result of having a picker department modern enough to prepare a well finished lap and cards are not required to do part of the picker duty as well as card duty, at a sacrifice of quality. I am convinced that we have expected too much quality from cards when a poorly prepared lap has been used and equally sure that too much importance cannot be placed on opening, preparing and cleaning a lap for cards.

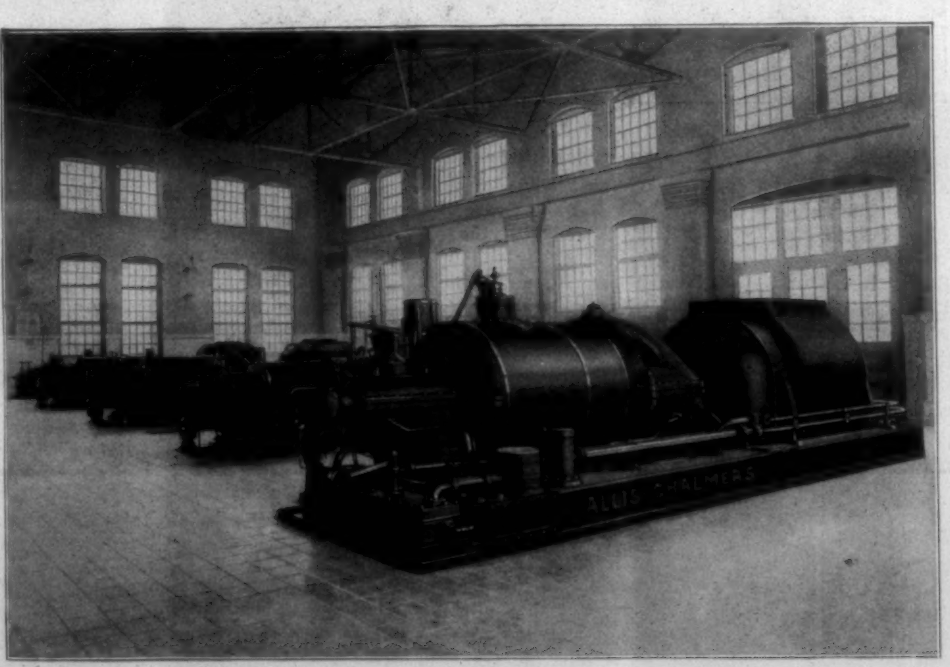
I have no data at hand except the total amount of waste taken from picker room weekly prior to installing the new machines, which averaged 248 pounds of motes and fly from ten machines. I submit herewith the results of tests after modern equipment was placed:

Twenty-five bales of 1-inch middling cotton was weighed in at 11,974 pounds and ran at bale breaker attached to one vertical opener, with first section of grids set wide open; second section two-thirds open and third and fourth sections one-half open. Speed of beater was 762 r.p.m.; foreign matter removed at vertical opener 95 pounds, or approximately 0.79 per cent. At breaker, intermediate and finisher picker, 207 pounds of motes and fly was removed, or about 1.75 per cent after leaving vertical opener. The stock was even and not a single end was down at cards (only as stripped while the last was on). Then 25 bales of about the same weight was tested with each section of grids closed in vertical opener and 31 pounds of fly was removed and in picking, 142 pounds of fly and motes was removed, a total of 173 pounds as against 302 pounds with grids opened as first described—a difference of 129 pounds must be removed at the card, fall out on the roller beams of various machines, or remain in the finished product.

In another instance 48 old style spinning frames were being operated on 20s warp yarns, 224 spindles per frame, a total of 10,752 spindles. Production averaged 22,700 pounds weekly, paying 27 cents a side for spinning and using 6 doffers, the weekly payroll for spinning and doffing along was $259.20, or 1.14 cost per pound. Every effort failed to reduce this cost or increase the production.

Later 48 spinning frames of the late model, tape driven, longer traverse and increased gauge were put in, a total of 12,288 spindles, or 256 spindles per frame. The work ran much better, the same pay per side was accepted, 29,500 pounds was produced weekly. One doffer was eliminated at $15. Weekly pay for spinners and doffers now $224.20. Cost per pound came down to .83. It is true that we increased total spindles by 156, but taking the same number of spindles as the old

(Continued on Page 32)



STEAM TURBINES
for
TEXTILE MILLS

The Allis-Chalmers Steam Turbine has earned an enviable reputation for efficiency and reliability, and the fact that a large proportion of our output is for customers already using our equipment indicates the operator's confidence in our apparatus.

Many Southern and New England Textile Mills are equipped with Allis-Chalmers Steam Turbines, exclusively, additional units having been purchased from time to time as power requirements increased.

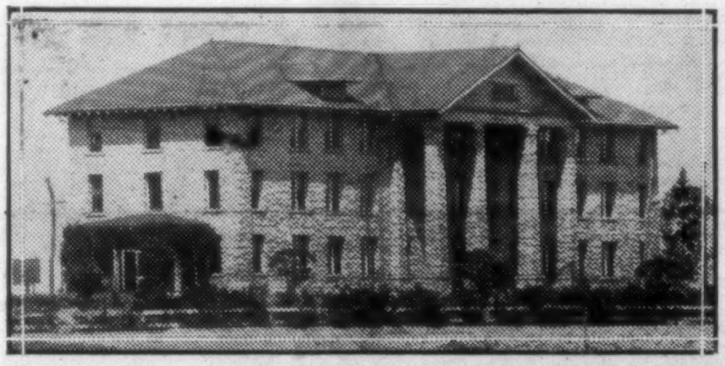
Send for Bulletin No. 139-A on Textile Mill Equipment.

ALLIS-CHALMERS
MILWAUKEE, WIS. U. S. A.

Receiver's Sale of Valuable Property

Proceedings now being had in Court of Common Please, Spartanburg County, which will result in sale of the following described property on the 2nd day of June, 1924, at 10 o'clock forendon. Due legal advertisement will hereafter appear.

The Cotton Manufacturing Plant known as the Model Mill will be offered for sale at public auction. This property consists of main mill, a two-story concrete and brick building containing 22,000 square feet; concrete and brick boiler house; brick warehouse; one 8-room dwelling, and approximately 90 acres of land apportioned therewith. No operatives' houses. Machinery and other equipment included with sale of mill. The property is sewered, has city and also independent water supply. This is one of the most beautiful small mill properties South; is located on a high elevation two miles from and overlooking the City of Spartanburg and one mile from the big car shops development of the Southern Railway at Hayne.



Also the property adjoining and known as the Textile Industrial Institute will be sold immediately following. This consists of one three-story and basement granite dormitory and equipment, including school room equipment; ten acres of land, more or less; one 5-room and one 4-room houses; five frame and canvas huts; stables and other outbuildings. This property comprises one of the most unique and successful Mission Schools in the world and is the only known boarding school in the United States where young men and young women can spin or weave their way to an education. Average enrollment 200; average yearly applications received greatly exceeds capacity of accommodations; regular eleven grades through High School, including courses in domestic art and science. Available statistics last few years show graduates now serving as follows: 15 preachers, 2 foreign missionaries, 11 cotton mill department heads, 4 public school teachers, 12 engaged in banking, insurance and civil service, 2 in South Carolina Legislature and 21 now enrolled in higher colleges. Of present enrollment, 14 preparing for ministry, 5 for foreign missionaries and the others for technical and business professions. Nearly all of them came from the cotton mills, entering the lower grades and worked through. No student admitted who is able to pay his way. This is one of the greatest institutions in existence for the ambitious, but poor, who are otherwise denied an education, and some Church or other organization has the opportunity to secure a well-established, thoroughly organized and world-wide known school which offers unparalleled advantage for social service of a high and dependable character. The school is situated about the center of one thousand separate cotton mills with an industrial population of close to a million, and the possibilities are unlimited.

Also the highly desirable residential property adjacent thereto, containing about 40 acres of land and two splendid residences, will be offered for sale June 3, 1924, beginning at 10 o'clock forenoon. A full announcement of this sale will appear in a subsequent advertisement.

Terms of Sale: One-third cash, balance in one and two years.

For further information address E. E. CHILD, Receiver, Spartanburg, S. C.

Dry Goods Convention in Charlotte

THE Thirteenth Annual Convention of the Southern Wholesale Dry Goods Association, held in Charlotte this week, was attended by approximately a thousand members of the organization, selling agents, textile salesmen and others interested in the textile trades.

The meeting opened Tuesday afternoon with meetings of the divisions of the association, this being followed by a general business meeting. Addresses on the opening day were delivered by Alfred H. Williams, president of the association; Stuart W. Cramer, LeGrange Wilson, W. M. House and W. R. Norther, the latter being treasurer of the organization.

President Williams delivered an inspiring address, emphasizing that cut-throat business methods must be condemned by all merchants who are interested in honesty and fair dealings.

Stuart W. Cramer, prominent cotton manufacturer and former president of the American Cotton Manufacturers' Association, delivered a very interesting address in which he showed something of the present importance of the Southern textile industry.

"Textile goods made in the South are today equal in quality to similar goods made anywhere on the face of the earth," Mr. Cramer declared.

Following the morning session, members of the association were guests of the Charlotte Rotary Club for lunch.

In the afternoon divisional committees met in executive session and formulated reports and resolutions for the general business session, which was featured by addresses by C. C. Reed, E. W. King, E. B. Pollock, Edgar Schwartz, Sig Wise, Thomas Flaxman, Robert C. Watts and Thos. L. Anderson.

Wednesday Morning.

A number of interesting addresses were delivered at the Wednesday morning session. Among the speakers were John R. Summers, Dallas, Tex., the report of Secretary Norman H. Johnson; C. C. Henking, Huntington, W. Va.; W. C. Stitt, Youngstown, Ohio, and N. P. McNair, of Harvard University.

In the afternoon there were addresses by Jacques Bramhall, of New York, and Arthur W. Shelton, who is president of the Cottonseed Crushers' Association. These addresses were followed by a general discussion of the present dry goods markets.

The meeting then adjourned and members were taken on a sightseeing trip to the Chadwick-Hoskins, Highland Park, Leaksville Woolen and Charlotte Knitting Mills.

The annual banquet of the association was held Wednesday night at Hotel Charlotte. The principal speakers were H. V. Kaltenborn, associate editor of the Brooklyn Eagle, and Dr. D. W. Daniels, of Clemson College.

There was special music, vaudeville entertainment and dancing after the banquet.

The convention will continue in session through Saturday morning. Besides the business meetings, there will be several trips to mills near Charlotte, a golf tournament and many other entertainment features.

Mills Exhibit Goods.

One of the most interesting features of the convention was the exhibit of Southern made goods at the Chamber of Commerce. Exhibition space was arranged around the walls of the assembly room and there was a very comprehensive display of cotton and woolen goods, and knitted products made by Southern mills.

Brief descriptions of the exhibits are given below:

The Cannon Mfg. Co., of Concord and Kannapolis, had a very attractively arranged display of the various lines of towels which they manufacture. The company, as the largest manufacturer of towels in the world, showed a wide range of towels made in their North Carolina plants.

Spindale, Cleghorn and Stonecutter Mills, which are controlled by the Tanner interests of Rutherfordton and Spindale, showed many beautiful samples of their Spindale ginghams, Stonecutter zephyr ginghams, and Cleghorn ginghams. They also showed a number of Mallard braided rugs made at the Horn Co., Spindale.

The Highland Park Mfg. Co., of Charlotte, showed their well known line of Domino and Jeanette ginghams, Spencer ginghams and also a number of samples from the Bloomfield Mill at Statesville.

T. Holt Haywood, selling agents, of New York, had a very attractive booth showing goods from the various mills for which they are sales representatives. The goods on display included such well known lines as Aurora, Dorothy Perkins, Sunflower, E. M. H. and others.

Brogon Mills, Anderson, S. C., had a very effective showing of their famous Ladlassie romper cloth, Louise twills, Romaine and Saluda flannels.

Chadwick-Hoskins Co., of Charlotte, manufacturers of fine sheetings, had numerous samples of their trade-marked goods, including Mt. Vernon, Hoskins, Louise, Berkshire and South's choice brands.

Morolock Mfg. Co. showed samples of their duck and seersucker and also a number of seersucker and other suits for summer wear.

Woodward, Baldwin & Co., of New York, has an exceedingly attractive display of the products of the various Southern mills for which they are selling agents. This booth was one of the most interesting at the show and attracted a great deal of interest. The goods shown included some of the best known lines made in the South.

Southern Made Hosiery and Underwear—One of the booths was devoted to a display of numerous lines of hosiery, underwear and other knit products made by Southern mills. The samples included cotton and artificial hosiery, knit underwear in plain and mercerized styles.

The mills represented in this booth included the United Hosiery Mills, Chattanooga, Tenn.; Richmond Hosiery Mills, Rossville, Ga.; Aycock Hosiery Mills, South Pittsburg, Tenn.; May Hosiery Mills, Burlington, N. C.; Amos Hosiery Mills, High Point, N. C.; Fidelity Hosiery Mills, Newton, N. C.

Hesslein & Co., selling agents of New York, had a very comprehensive and effective display of their products of a number of Southern mills for which they are selling agents. The lines displayed included awning stripes, Huntsville chambray, mottled flannel, Killarney crash, Autaugua suiting, madras, drill, and the several lines of the Georgia-Kincaid Mills, Griffin, Ga.

Gibs Underwear Co. had a number of samples of their underwear made from Southern yarn.

James L. Wilson Co., selling agents, showed many attractive samples of the Rosemary Mfg. Co., Roanoke Rapids, N. C., the world's largest producer of cotton damasks. This company also had a fine exhibit of the cotton flannels made by the Roanoke Mills Co.

Charlotte Duck Clothing Co. had a display of several of their lines of men's work clothing, summer clothing such as seersucker, and sport clothes.

Alexander Mfg. Co., Forest City, N. C., had on display a wide variety of their famous Alexander Bedsheeting, in both brown and bleached styles.

Washington Mills, Fries, Va., showed a complete line of their famous Mayo underwear, both winter and summer weights, and of their Mayo yarns.

American Yarn and Processing Co., Mt. Holly, N. C., showed many samples of their mercerized and processed yarn in both white and colors.

Janet Garment Co., of Charlotte, showed a very complete line of children's muslin undergarments made in their Charlotte plant.

Northern Textile Co. had in their booth a large number of woolen blankets in many handsome patterns, made by the Leaksville Woolen Mills, Charlotte, and the Lebanon Woolen Mills, Lebanon, Tenn.

Icemorlee Cotton Mills, Monroe, N. C., showed numerous styles of their men's ribbed union suits and also samples of their knitting yarns.

Blue Bell Overall Co., Greensboro, N. C., manufacturers of overalls, had on exhibit many samples of their overalls, their display being unusually well arranged.

Riverside and Dan River Mills, Danville, Va., exhibited a large number of samples of their famous dress ginghams and chambrays.

P. H. Hanes Knitting Co., Winston-Salem, N. C., makers of the nationally known Hanes underwear, showed in their booth a wide variety of their different underwear styles in both the winter and summer garments, and also displayed samples of their yarns.

Joshua L. Baily Co., selling agents, displayed very attractive samples of the goods of the various Southern mills which they represent. Included in the display were such well known lines as Cooleemee, Erwin, Fidelity, Rose Glen, Pearl, Saxony and White Star brands.

Dye Problem Considered By Textile Industry

How to develop a method to stimulate sunshine in its effects on fading fabrics is a problem which has just been put up to the United States Bureau of Standards by the textile and dye industries of the country. The appeal is based on the present delay of months in testing the fading qualities of dyes. To overcome this delay and to shorten the test period would mean huge sums to the two industries, the bureau was told.

This request came about when representatives of manufacturers, chemists, colorists and consumers of dyes met with Dr. George K. Burgess and chemical and textile experts of the bureau to consider the development of three important steps; standard methods of testing the strength of dyes; a complete classification of the nomenclature in connection with dyes; and methods of testing the fastness of dyes on fabrics.

It was brought out that in other countries, notably Germany, standard names have been developed to cover certain dyes, regardless of whether they are made by one or several countries. In this country no such plan applies, and there is a possibility of wide confusion.

In connection with the request for means to shorten the test period, there was emphasized by the Bureau of Standards the need for the adoption of grades and grade names by which the actual extent of fading can be stated in terms which the entire industry will understand.

The meeting was attended by Harrison F. Wilmot, of the Synthetic Organic Chemical Manufacturing Association; Donald S. Ashbrook, of the Joseph Bancroft & Sons Co., Wilmington, Del., representing the National Association of Finishers of Cotton Fabrics; S. W. Cramer, Jr., of the Cramerton Mills, representing the American Cotton Manufacturers' Association; Walter M. Scott, of Cheney Bros., for the American Association of Textile Chemists; Winthrop C. Lurfee, Hugh Cristison, George A. Moran, Dr. Louis A. Olney, of Lowell Textile School, and W. E. Hadley, of Clark Thread Company, Newark, all representing the American Association of Textile Chemists and Colorists; W. F. Edwards, for the Silk Association; Walter Humphreys, of the joint committee on standards and research of the National Association of Wool Manufacturers; R. Norris Shreve and William J. Hale, dyes division, American Chemical Society; T. W. Delahanty, chemical division, Bureau of Foreign and Domestic Commerce, and the following from the Bureau of Standards: K. S. Gibson, F. R. McGowan, P. H. Bates, C. C. Hubbard, E. M. Schenke, H. T. Wensel, C. N. Schoffstall and W. D. Appell.

Mayview Manor

Blowing Rock, N. C.

"In The Heart of America's Alps"

OPEN JUNE 10TH TO OCTOBER 1ST

The Hightest Point on the Blowing Rock Plateau

At 4,500 elevation Mayview Manor commands sweeping panoramic views of Grandfather Mountain, Mount Mitchell, Table Rock Hawk's Bills, Clingman's Dome and the beautiful John's River Valley. The scenery is unsurpassed in America.

Azalea, Laurel and Rhododendron

Will be in bloom during the first month of the 1924 season which will insure an added interest and beauty to guests who arrive early in the season.

Amusements

Golf, Tennis, Riding, Motoring, Tramping, Trout Fishing, Swimming, Dancing.

Resident physician. Dietitian. Telephone in each room. Cuisine unexcelled. 1924 season under management of John J. Fitzgerald, of the Pinehurst organization

For Further Information Address

Mayview Manor,
Blowing Rock, N. C.

"Galv-After" Chain Link Fence Fabric

HEAVILY ZINC-COATED (or Hot-Galvanized) by HOT-DIPPING PROCESS AFTER WEAVING

Here again the Cyclone organization has asserted its leadership—producing for the first time Chain Link Fence Fabric Heavily Zinc-Coated (or Hot-Galvanized) by Hot-Dipping Process AFTER Weaving. This fence fabric lasts many years longer than fabric made of wire galvanized before weaving; does not require annual painting expense.

Write nearest Cyclone Offices, Dept. 36 for complete information about Cyclone "Galv-After" Fence and Cyclone Service which solves any fencing problem.

CYCLONE FENCE COMPANY

Factories and Offices:
Waukegan, Ill. Cleveland, O.
Newark, N. J. Fort Worth, Tex.
Oakland, Cal. (Standard Fence Co.)
Portland, Ore. (Northwest Fence and Wire Works)

Cyclone "Red Tag" Fence and Products

The Mark of Quality Fence and Service

Cyclone Fence

PROPERTY PROTECTION PAYS

Cotton Industry As Part of National Economy

By Magnus W. Alexander, Managing Director, National Industrial Board, of New York, before National Association of Cotton Manufacturers.

WHEN we think of the cotton industry in the United States, we see in our mind's eye the great South where the bulk of the world's cotton is grown, or the New England States where the political as well as industrial life of our great country began and where the cotton manufacturing industry today centers. To some of us the words "cotton industry" are synonymous with certain important cities, like Fall River, New Bedford, Lawrence, Lowell, Providence, New Orleans, Memphis, Baltimore, Louisville, Columbia, Chattanooga.

Yet the cotton industry is not a sectional industry. It is one of the basic industries that has a definite part in our national economy. It should not require much to recognize this. Even before we had begun to take our place among the world's great cotton manufacturers, a great part of the world had already begun to depend upon the cotton that we raised. The establishment of the first cotton mill in the United States—the old Slater mill at Pawtucket—was regarded as an event of national importance. Alexander Hamilton, first Secretary of the Treasury, thought the establishment of this mill of sufficient importance to mention it in the first annual report that he prepared. He pointed out that "the manufactory at Pawtucket has the merit of being the first in introducing into the United States the celebrated cotton mill, which not only furnishes materials for that manufactory, itself, but for the supply of private families for household manufacture."

To Hamilton the financial security of the United States was inseparately linked with the stability and progress of its industries. He hailed the beginning of the cotton manufacturing industry in the United States as an event of utmost importance. It has certainly played an important part in the political life of the United States as, indeed, it has in its economic life.

Anyone who considers for a moment the conditions in the cotton industry recognizes how much it influences and how it has been influenced by national economic conditions. Take, for example, the brief period 1914-1919 for comparison. In 1914, of the 393,404 wage earners employed in cotton manufacturing three-tenths of one per cent were employed on a work-week of 48 hours or less. Five years later, according to the Census of Manufacturers of the United States, there were 446,852 wage earners engaged in cotton manufacture, but the percentage of wage earners employed on a work-week of 48 hours or less was 39.3. If we take the wage situation in the same five-year period, we find, according to the studies of the National Industrial Conference Board, that average earnings in Northern cotton mills in July, 1914, were 17.6 cents an hour, whereas at the peak in December, 1920, they were 53.6 cents an hour, and in January, 1924, 46.9 cents; or if we take another phase, one that has been the subject of considerable discussion in the cotton manufacturing industry, namely, the migration of mills to the South. we find that in 1879 New England employed 72.5 per cent of all persons engaged in cotton manufacture, the Middle Atlantic States 15.7 per cent, the Southern States 6.7 per cent, and all the remaining States 5.17 per cent. In 1919, 40 years later, the New England States employed only 47 per cent, the Middle Atlantic States 9.4 per cent, Southern States 39.6 per cent, and all the remaining States 4 per cent—a relative decrease for every section except the South.

During this 40-year period, the number of employees in cotton manufacturing rose from 125,000 to 210,000. Had New England maintained the same proportion of the total in 1919 as it did in 1879, it would have shown an increase of 199,000 instead of 85,000, and would have employed 324,000 persons instead of 210,000. The Southern States in this period increased from approximately 11,500 employees to 177,000 employees, a gain of 165,000. In terms of percentage, the New England States in 1919 showed a 35.17 per cent loss in their quota, as compared with 79 per cent, whereas the Southern States showed a gain of 491 per cent.

These changes are not isolated economic phenomena. There was a time when our industries were few and industry itself was highly localized, when industries were much more independent and not greatly influenced by conditions in other industries. That day, however, has long since gone. We live today in a highly organized and complex economic world in which men and industries are interdependent, and in which every industry is under the necessity not only to know what is going on in other industries but in taking an active part in the common problems of industry.

Let us see somewhat more closely, however, the part the cotton industry plays in our national economy. One of the significent developments of the war has been the growth in national economic consciousness. In every country of the world there is today more interest in economic problems, more legislation affecting industry, more concern about natural resources than probably at any time during the present century. In some countries this consciousness has expressed itself in political action of a far-reaching character. In fact, this economic consciousness almost ran into hysteria in the years immediately following the war,

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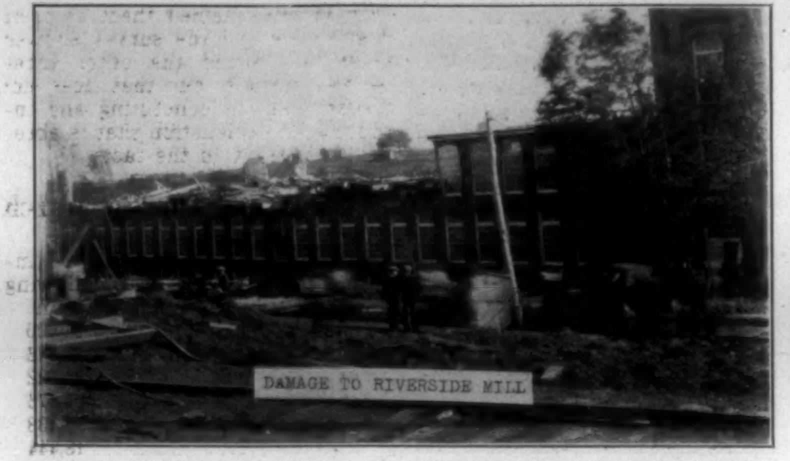
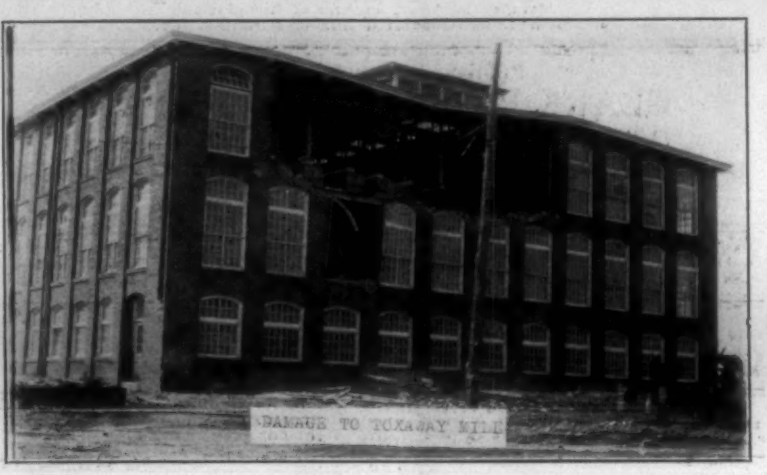
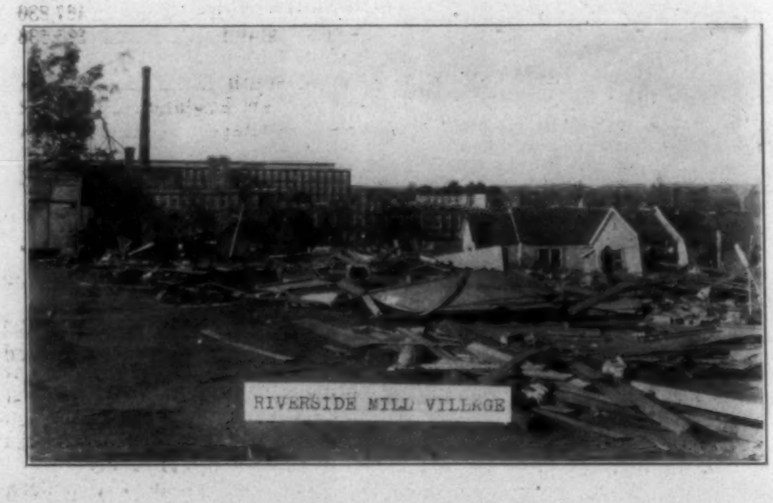
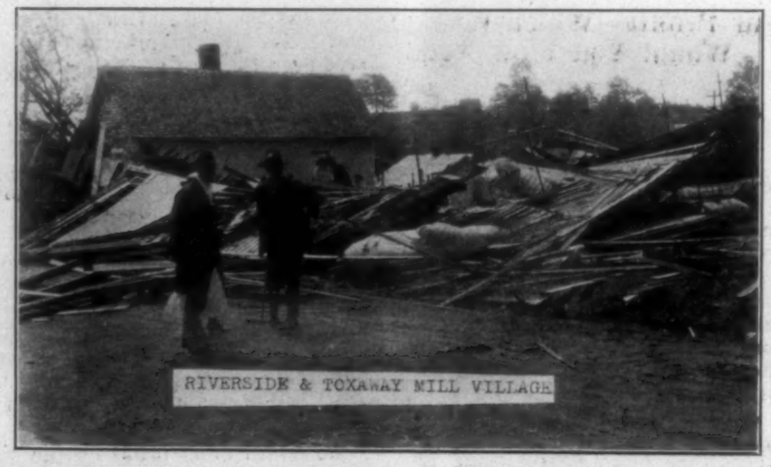
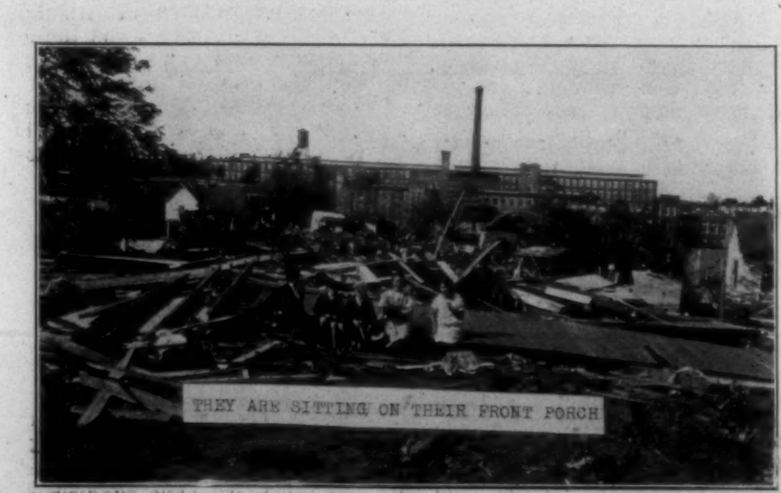
Where Storm Wrecked Mill and Village

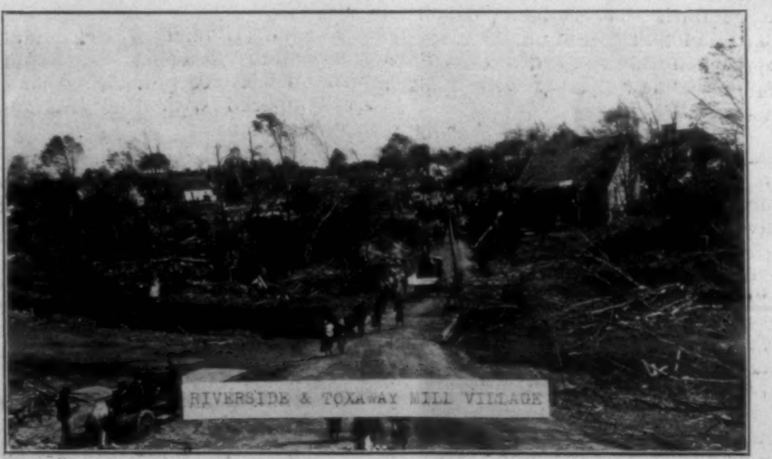

DAMAGE TO RIVERSIDE MILL


DAMAGE TO TOXAWAY MILL


RIVERSIDE MILL VILLAGE


RIVERSIDE & TOXAWAY MILL VILLAGE


THEY ARE SITTING ON THEIR FRONT PORCH


RIVERSIDE & TOXAWAY MILL VILLAGE

Scenes After Storm Struck Riverside Mill, Anderson, S. C.

The above pictures show plainly the destruction wrought at the cotton mill and village of the Riverside Manufacturing Company, Anderson, S. C., by the terrific tornado which visited that section on Tuesday, April 29.

The roof of the mill building was almost entirely torn away by the force of the wind and the machinery was badly damaged by the heavy rains which poured into the building.

The "twister" cut a path through the houses in the mill villages, demolishing thirty homes and damaging many more. One woman and her two young sons were killed when their home was reduced to a mass of timbers.

The Toxaway Mills, which is located close to the Riverside plant, sustained only small damage from the storm.

The damage to the Riverside mill and village is estimated at approximately $500,000 by B. B. Gossett, president of the company.

Work of rebuilding the plant will be begun as soon as plans have been completed by the engineers, J. E. Sirrine & Co., of Greenville. A contract for the erection of a temporary roof has already been awarded.

DAMAGED PAGE(S)

SOUTHERN
TEXTILE BULLETIN
Member of Audit Bureau of Circulations
Member of Associated Business Papers, Inc.

Published Every Thursday by
CLARK PUBLISHING COMPANY
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DAVID CLARK.........Managing Editor
D. H. HILL, JR.........Associate Editor
JUNIUS M. SMITH.........Business Manager

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ADVERTISING
Advertising rates furnished upon application.
Address all communications and make all drafts, checks and money orders payable to Clark Publishing Company, Charlotte, N. C.

For Profits—Which Way Would You Plow Today

OUR early forefathers raised their food by plowing the ground with a plow shaped from the forks of a tree.

Then iron was discovered and iron plow points took the place of wooden plows.

The iron points turned up the ground better and produced larger crops and we can imagine what our forefathers thought and said about the men who continued to plow with the fork of a tree.

In spite of the vast improvement and efficiency of the new points there were undoubtedly some who continued to scratch the ground with wooden plows and to obtain inferior results just as there are some mills today who continue to card and spin cotton on old machinery when the work could be done far better and cheaper with modern machinery.

Such men are no doubt the direct descendants of those who continued to turn the soil with forked trees long after iron plow points were invented.

Out in Texas progressive farmers can be seen, seated upon tractors, plowing twenty or more cotton rows at a time, while behind a slow moving team of oxen another man makes a trip across the field for every furrow that is turned.

In a day's time the progressive tractor farmer will plow forty times as many acres as the other and will therefore cultivate more land with a lower cost per acre.

Many New England cotton manufacturers had the wrong idea about replacing old equipment and quite a number of them have already or will soon deliver their plants into the hands of junk dealers.

They lost sight of the greater productive power and the resultant lower cost per pound from new equipment.

They continue to operate the slow moving spindle and the old style loom and the price of their inaction has been far greater than would have been the cost of the most modern machinery.

About twenty years ago Fall River was settling the question of automatic or plain looms and because they did not realize the advantages of the increased production and objected to the price of the automatic loom, they decided in favor of plain looms.

Southern mills are today not only producing print cloths several cents per pound less than Fall River, but are making better goods and the great cotton manufacturing industry of that city is doomed.

The South must profit by the example of New England and refuse to operate machinery that is not capable of the highest production capacity.

The curtailment of the mills in the United States is now upon a basis of 6,000,000 pounds per month as compared with the production last year.

Such a shrinkage in the output of cotton goods is rapidly creating a vacuum and when the buyers finally enter the market they will find a shortage.

When the demand comes every extra pound will mean a profit and old machinery will not be able to give the maximum of production desired.

We know a mill that has a spinning front roll speed of 128 on 30s. How much speed are you getting? You can get 128 or more with the right equipment, so why not divide your overhead cost by the increased production?

Now is the time to take stock of your equipment and to learn which machines resemble a plowing tractor and which may be likened to the slow progress of an oxen drawn plow.

Tomorrow more production will me devoutly desired and you will bitterly regret being upon an "oxen production" basis.

English Mill Got The Order

It is reported to us that about two weeks ago, a buyer was in the market for a good size quantity of tissue gingham. A southern mill that needed business quoted a price of 18½ cents which was actual cost to them, but the business was taken by an English mill at 16½ cents.

As they agreed to furnish exactly the same goods, they accepted the business at 2 cent per yard less than the cost to the southern mill.

The southern mill is on half time and the operatives of that mill are receiving only half wages due to the business taken from them by a foreign mill.

This is a practical illustration of the effect of tariff and shows that a low tariff can injure American labor as well as American industries.

The ladies who tries to show that the tariff is responsible for the price of goods should study the above case.

A Story For Yarn Spinners

A visitor at an insane asylumn noticed that there were only twenty guards taking care of four hundred insane men.

He said to one of the guards, "I should think you would be afraid, for if the four hundred insane men combined they could easily wipe out twenty guards.

The guard replied, "If they had sense enough to combine they would not be in here."

There are about twenty yarn speculating houses controlling the business of about four hundred yarn mills.

Therefore the attention of the yarn manufacturers of the South is called to the above story with the hope that they will see the point.

A strong set of officers and an experienced secretary are in charge of the Southern Yarn Association, and if the yarn spinners of the South have enough sense to organize, now is the time to demonstrate the fact.

An Incorrect Statement

AT the top of a page advertisement in their May 1st issue the American Wool and Cotton Reporter of Boston says:

"A textile publisher recently prepared a straw vote to show the relative value of certain designated textile papers as advertising media. The plan was to have a prospective advertiser write to a specially prepared list of selected textile mills asking for their opinion of the papers named. Of course, such a report was sure to be favorable to our esteemed contemporary."

We realize that we are the textile publisher to whom reference is made and therefore wish to say that the statement that the prospective advertiser wrote to **"a specially prepared list of selected textile mills"** is absolutely untrue.

An advertiser desiring to get first hand information about the several textile journals wrote to 500 Southern mills. He made up his own list and we not only have never seen it but do not know to this day to which mills he wrote.

We do not blame the American Wool and Cotton Reporter for feeling badly because of the fact that only 14 mills named them as their first choice and the survey showed them far behind the other three textile journals, but that does not justify them in concocting and inventing an explanation that is absolutely contrary to the facts.

Spindles Idle During March

Report of the Department of Commerce shows that the following spindles were idle during March:

Alabama	82,600
Georgia	129,316
North Carolina	285,822
South Carolina	108,576
Tennesse	11,438
Virginia	18,444
Connecticutt	82,500
Maine	60,038
Massachusetts	3,260,844
New Hampshire	467,830
Rhode Island	385,538
Idle in South	741,674
Idle in New England	4,297,912
Idle elsewhere	330,214
Total idle spindles	5,369,700

A Typical Politician

The following is an extract from an Atlanta paper:

> "Mayor Walter A. Sims was lauded for his refusal to attend the opening baseball game at Spillers Park and pitch the first ball because of his assigned reason that the huge stand was built by non-union labor."

A better illustration of a modern politician could not be shown.

Among the workmen of Atlanta there are union members and those who exercise their right as citizens of Atlanta and do not join.

The little mayor of Atlanta says that only one class of citizens shall work and hopes thereby to get votes and re-election.

A Letter From Vanderlip

Citizens Federal Reserve Bureau
New York City

Mr. David Clark,
Charlotte, North Carolina.

Sir:—

We received your letter of April tenth and it is indeed encouraging to receive such letters of commendation as yours. We have established a definite program, and that is to conduct an impartial, independent and thorough investigation of the executive departments of the federal government, and the matter you speak of will eventually receive consideration. We are taking the liberty of placing your name on our mailing list, thereby keeping you informed of our progress.

Thanking you for your interest,
Very truly yours,
F. A. VANDERLIP,
Treasurer

Personal News

M. Dewey Sauls has been promoted to second hand in spinning at the Olympia Mills, Columbia, S. C.

W. J. Hamilton, of Paw Creek, N. C., is now grinding cards at the Republic Mills No. 2, Great Falls, S. C.

A. G. Giles, from Pineville, N. C., is night spinner at Alsace Mills, Mount Holly, N. C.

M. C. Duncan has been promoted from night to day spinner at Alsace Mills, Mount Holly, N. C.

A. C. Revels has accepted the position of superintendent of the yarn mill being built by the Cheraw Oil & Fertilizer Co.

F. D. Low, of Nims Manufacturing Company, Mount Holly, N. C., is night spinner at Perfection Spinning Company, Belmont, N. C.

J. Ralph Clark, of Gastonia, N. C., has become night superintendent of the spinning plant of the Taubel-Scott Company, Lenoir City, Tenn.

James J. Lever has been promoted from second hand in spinning to overseer spinning and spooling at the Olympia Mills, Columbia, S. C.

J. W. McArver, of Gastonia, N. C., has become superintendent of the spinning mill of the Taubel-Scott Company, Lenoir City, Tenn.

Warren H. Pearman, overseer of spinning at the James White Mills, Princeton plant, Athens, Ga., has been made general overseer spinning, spooling and twisting.

Ray Kilmore has resigned as loom fixer at the Fairfax Mills, Fairfax, Ala., and accepted a similar position at the Georgia-Kincaid Mills No. 5, Griffin, Ga.

Joe Castleberry has resigned as overseer of night carding at the Aldora Mills, Barnesville, Ga., and accepted a similar position on the day run with the Georgia-Kincaid Mills No. 5, Griffin, Ga.

C. O. Drayton, assistant sales manager of the Graton & Knight Manufacturing Co., is making an extensive business trip through the South and Southwest. Mr. Drayton states that business conditions in these areas are good and that belting and heavy leathers trade in general is sound and active.

J. F. Laughters, formerly superintendent of the Taubel-Scott Company's spinning mill at Lenoir City, Tenn., has accepted a position with the Southern office of the Whitin Machine Works at Charlotte. He was formerly with the Whitin Machine Works for about 20 years.

W. A. Brooks, who has been superintendent of the Georgia Mills Nos. 1 and 2, Griffin, Ga., for the past three years, is now also superintendent of the Mill No. 5, which was formerly Kincaid Mill No. 1. Mr. Brooks, since the mills have been renumbered, is superintendent of Georgia-Kincaid Mills Nos. 2, 3, 4 and 5.

Mrs. J. C. Hand Dead.

Mrs. J. C. Hand, wife of J. C. Hand, of the Canton Cotton Mills, Canton, Ga., died recently at the home of her brother-in-law, J. J. Hand, of Phoenix City, Ala.

Mrs. Hand is survived by her husband and five children, one of them being an infant two weeks old.

Mr. Hand is widely known in the Southern textile industry and has many friends who will regret to learn of the loss of his wife.

Mill Manager Believed Drowned.

Morganton, N. C.—All indications point to the drowning in Lake James of Clarence V. Lael, manager of the Glen Alpine Hosiery Mill. His car and clothes were found late this afternoon at a point just above the Linville power house and the general belief is that he was drowned while in swimming.

On Thursday Mr. Lael left Glen Alpine to go above Bridgewater in search of mill labor. His family were visiting in Hickory, and when he did not return yesterday or even this morning no concern was felt. However, when he had not returned this afternoon in time to make the weekly payroll it was felt that he must have appened to some accident, and an investigation was started, with the result that his car was located near the lake.

A party of searchers found his clothes, and some effort was made to drag the lake at this point, but the body had not been located tonight.

Mr. Lael was very successful in the hosiery mill business, and both here and at Glen Alpine, where he was highly esteemed, his mysterious disappearance with the almost certain probability that he has been drowned has caused much concern. He formerly lived in Marion, where he married a Miss James.

Calais Exports of Lace and Net to the United States.

The Calais lace and net industry, which languished to some extent during 1922 and the first half of 1923, entered in July, 1923, upon a period of exceptional prosperity, according to Consul T. B. Davis. This change for the better was due to the stimulation of foreign buying on account of the low exchange value of the French franc. Exports to all foreign countries increased. The United States, the principal market, virtually doubled its purchases, declared exports of laces and nets to the United States from Calais amounting to 14,387,184 francs in 1923 compared with 8,168,058 francs in 1922.

Cotton-Bleachers

Your requirements are:
Strength and Durability,
Softness and Elasticity,
A Permanent White,
Saving Weight and Yardage,
Fool-proofness,
Low Cost,
Absence of Poison-gases.

You do not get them all unless you bleach with the Solozone Process.

The Roessler & Hasslacher Chemical Co
709 Sixth Ave.
NEW YORK CITY

Leno And Marquisette Weaving

Our leno doups for weaving marquisettes and fancy leno weaves are universally accepted as the only satisfactory solution of leno weaving.

In fact, by using our doups, any weave room with dobby looms can make a leno stripe as easily and at as low cost as any ordinary fancy fabric and, that, too, without any extra attachments to the loom whatever—no, not even a jumper or a slackener attachment is required.

STEEL HEDDLE MFG. CO.

GREENVILLE
"Duplex" Loom
Harness—complete
Frames and
Heddles fully
assembled

Harness Frames
Selvage Harness
Leno Doups
Jacquard Heddles

PHILADELPHIA

SOUTHERN PLANT
Greenville, S. C.

HAMPTON SMITH
Southern Manager

PROVIDENCE
Drop Wires
Nickel-Plated
Copper-Plated
Plain Finish

Improved
Loom Reeds
Leno Reeds
Lease Reeds
Combs

DAMAGED PAGE(S)

MILL NEWS ITEMS OF INTEREST

Biscoe, N. C.—Aileen Mills, Inc., have purchased a number of Bahnson humidifiers to boost present system in their weave room.

Rock Hill, S. C.—The Arcade Mills have completed the installation of 14 cards and three vertical openers in tandem.

Rock Hill, S. C.—The Aragon Mills have completed installation of three Saco-Lowell vertical openers in tandem.

Bemis, Tenn.—Contract for complete humidification of the Bemis Cotton Mills has been awarded to the Bahnson Company, Winston-Salem, N. C. This new equipment is to take the place of the old system now in the mill.

Cherryville, N. C.—The Carlton Yarn Mills have about completed the extension to their Cherryville plant. Contract for the humidification of this addition has been placed with the Bahnson Company, Winston-Salem, N. C.

Haw River, N. C.—The Travora Manufacturing Company will erect an addition to the opener room of their Haw Manufacturing Company plant and extend the spinning room. J. E. Sirrine & Co., Greenville, are the engineers.

Pageland, N. C.—It is understood that work will begin at an early date upon the mill to be built here by Geo. R. Spencer, of Gastonia. It is reported that a textile machinery equipment has been purchased from a New England mill.

Cheraw, S. C.—The Cheraw Oil & Fertilizer Co. have purchased a two-unit waste system and 1,000 spindles from the Whitin Machine Works and will manufacture 2s to 6s yarns from linters and cotton waste. M. B. Crigler is manager and A. C. Revels will be superintendent.

Sumter, S. C.—The plant to be located at this place by the London Mills, of Connecticut, have not yet been put in operation. They have moved about 75 looms, and while they are on the floor, they have not yet been put in place. They expect to manufacture colored goods.

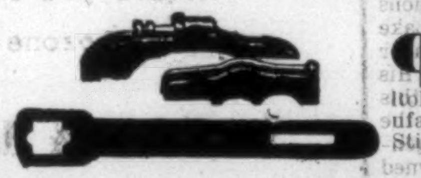
Clinton, S. C.—Lockwood, Greene & Co., engineers of Atlanta, Ga., and Boston, Mass., have been commissioned by Lydia Cotton Mills, Clinton, S. C., to design and supervise the installation of power and lighting in their old mill, as well as the complete electrification of the new extension, which extension was designed and has recently been completed by Lockwood, Greene & Co., engineers.

Bethune, S. C.—Efforts to organize a company to build a new mill here are being continued and a number of business men have agreed to take a substantial amount of stock.

Lancaster, S. C.—The Lancaster Cotton Mills have placed an order with the Draper Company for 300 looms and will weave the output of their coarse yarn mill.

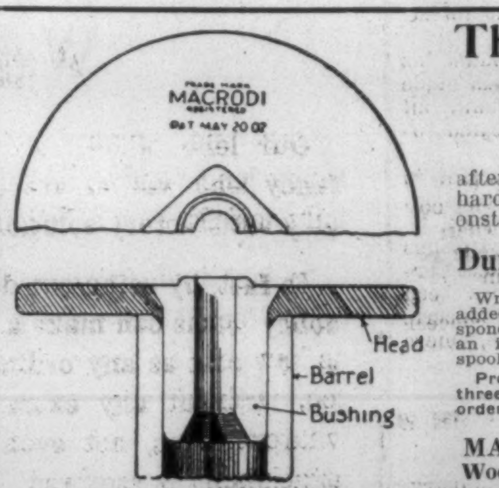
THE FARISH COMPANY
COMMISSION MERCHANTS
100 WORTH STREET
NEW YORK

DIXON LUBRICATING SADDLE CO.
BRISTOL, RHODE ISLAND



Use Dixon Patent Stirrup Adjusting Saddles, the latest invention in Saddles for Top Rolls of Spinning Machines. Manufacturers of all kinds of Saddles, Stirrups and Levers.
WRITE FOR SAMPLES

RAW STOCK DYEING
We Specialize on Fast Colors
We reclaim burnt and damaged cotton
Prompt Service
SANDERS, SMITH & CO.
Charlotte, N. C.



The Macrodi
FIBRE HEAD
WARP SPOOL
after fourteen years of the hardest mill use has demonstrated that it is
Durable—Economical
Write for particulars of the added traverse with corresponding increase in yardage—an important feature of this spool.
Prompt deliveries in two to three weeks after receipt of order.
MACRODI FIBRE CO.
Woonsocket, Rhode Island

Members American Society Landscape Architects
E. S. DRAPER
11 E. Fifth St. CHARLOTTE, N. C.
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LANDSCAPE ARCHITECT and ENGINEER
Town Planning and Mill Village Developments
Parks, Real Estate Subdivisions and Cemeteries
Resort Hotels and Country Clubs
Private Estates and Home Grounds
Complete Topographic Surveys
General Designs, Planting, Grading and Detail Plans
Supervision of Landscape and Engineering Construction
Sewer and Water Development
Largest Landscape Organization in the South

Enoree, S. C.—The Enoree Mills are installing 12 intermediate roving frames and replacing 2,496 spindles with 3,840 new Whitin spndles, all warp wind. J. E. Sirrine & Co., Greenville, are the engineers.

Oxford, N. C.—The C. M. Hosiery Mills, which were organized here some weeks ago, as noted, have started operations. They buy yarns in the grey and dye and finish at their plant. They will specialize in seconds and thirds of all grades of hosiery. Samuel Cohn is president and I. C. Cohn, treasurer.

Belmont, N. C.—Operations at the Eagle Yarn Mills are expected to start about June 1. The mill will have an equipment of 12,672 spindles and will make combed yarns, 30s to 50s in ball warps, skeins, tubes and cones. Construction of the mill was begun a year ago. W. B. Pruett is president, J. W. Stowe, treasurer, and D. W. Bumgardner, superintendent.

Goldville, S. C.—The Banna Manufacturing Company will considerably enlarge its plant and village, as recently reported. It is planned to increase the capacity of the plant by about 30 to 40 per cent. The extension work will also include the erection of about 45 cottages in the mill village. Lockwood, Greene & Co. are the engineers.

The Banna Manufacturing Company was sold a few weeks ago to the Oswego Shade Cloth Company, of New York, and the product will be cloth suitable for making window shades.

Swannanoa, N. C.—The Beacon Manufacturing Company, of New Bedford, Mass., have purchased 800 acres and will at once begin the erection of the first of three cotton blanket mills. E. S. Draper, of Charlotte, N. C., has been employed as landscape architect and Mr. Wardwell, of Asheville, will be sewerage and water works engineer. A Boston engineer whose name has not been learned will design the buildings. About 150 houses will be built. W. R. Campbell, of Asheville, N. C., is the local agent of the Beacon Manufacturing Company.

Greenville, S. C.—The Southern Weaving Co., which was recently formed here, as noted, has completed organization with H. L. Murdock, president, B. E. Greer, vice-president and chairman of the board, J. W. Burnette, treasurer. The company is capitalized at $150,000.

Machinery for the manufacture of cotton specialities will be installed, including both spinning and weaving equipment. The building formly occupied by the Shambow Shuttle Co., has been leased, including six acres of land, warehouse and office building.

Anderson, S. C.—Plans for rebuilding a part of the mill and village of the Riverside Manufacturing Company, which was badly damaged by a tornado last week, as reported, are being prepared by J. E. Sirrine & Co. Contract for the erection of a temporary roof over the damaged portion of the mill has been let to the Fiske-Carter Construction Company, of Greenville.

The damage to the Riverside plant has been estimated at around $500,000. The mill company carried tornado insurance amounting to approximately $250,000.

The Toxaway plant, which was also damaged to some extent, had $315,000 in tornado insurance.

Work of rebuilding the damaged portions of the mill and village will be started as soon as the plans are completed.

Dallas, Tex.—Charter has been filed in Austin for the incorporation of the Texas Textile Mills, with a capital stock of $5,000,000, to build and operate cotton mills in Texas, the first of which will be a 25,000-spindle mill, located in Dallas, headquarters of the corporation. The local mill will be the largest of its kind in Texas and will manufacture gray goods. Work on the plant is expected to be started as soon as organization details are completed.

Charter for the company was filed by Lewis T. Carpenter, local attorney, and the incorporators include Texas bankers, business men, cotton mill owners and operators, farmers and textile engineers of national reputation. They are Nathan Adams, president of the American Exchange National Bank, Dallas; Gus F. Taylor, president Citizens National Bank, Tyler; R. Bergfeld, vice-president Citizens National Bank, and capitalist, Tyler; Joe B. Fortson, president Corsicana National Bank and farmer, Corsicana; J. W. Wright, capitalist, Dallas; M. L. Cannon, of the Cannon mill organization of North Carolina; J. H. McDonough, president Murray Co., Dallas; Lewis T. Carpenter, lawyer, Dallas; L. W. Robert, Jr., textile engineer, Atlanta, Ga.; John W. Carpenter, vice-president and general manager, Texas Power & Light Co., Dallas; R. D. Johnson, treasurer of the Federal Land Bank, Houston; William Bacon, business man, Dallas; J. B. Earle, president Waco Twine Mills and president Liberty National Bank, Waco; C. B. Buxton, of H. L. Edwards Company, cotton merchants, Dallas; Clinton C. Phelps, president Sherman Manufacturing Company, Sherman, and W. F. Pearson, Dallas.

This is the largest textile enterprise to be formed since the concerted movement was started in Texas for mills to manufacture the State's money crop into the finished product. It is stated that the Dallas mill will probably be a forerunner of the establishment of other large cotton mills in Texas.

LOOM STRAPPING

Designed and made of leather of the proper quality, weight and toughness of fiber to meet the actual working stresses. The use of judgment in manufacture means to you,

Gain in Production at Lowest Strapping Costs in Keeping With Service Required

We specialize and know your looms.
Ask your jobber.

The Druid Oak Belting Co., Inc.
Baltimore——Boston

SEYCO

Seydel-Thomas Co.

Textile Chemicals
for Best Weaving

Seyco Products

The result of twenty years' study and practice in treatment of Sizing and finishing problems.

Main Office and Plant
35 Glenn St.
Atlanta, Ga.

Branch Office
Room 206 Andrews Law Bldg.
Spartanburg, S. C.

Joseph L. Davidson Co.
Established 1889

Designing Card Stamping Repeating
FOR ALL TEXTILE FABRICS

2525 N. Second St., Philadelphia, Pa.

WELL DRILLING AND DEEP WELL PUMPS

We do the engineering, and have had 32 years experience solving water problems satisfactorily for textile mills.

Sydnor Pump & Well Co., Inc.
Richmond, Va.

COMPLETE DYEHOUSE EQUIPMENT
Special Machinery for Textile Mills
The Klauder-Weldon Dyeing Machine Co.
Bethayres, Pa.

Established 1896 **Incorporated 1914**

LOWELL SHUTTLE COMPANY

Manufacturers of

BOBBINS SPOOLS SHUTTLES

Write or Telegraph for Quotations **Office and Factory: 19 Tanner St., LOWELL, MASS**

THE CHOICE OF A HUMIDIFYING SYSTEM

must be one that for simplicity with great capacity and economy in maintenance produces uniformly such conditions that may be determined for the different requirements of the work. In the American Moistening Company's method of humidifying, all such requirements are GUARANTEED

Our COMINS SECTIONAL HUMIDIFIERS
Our FAN TYPE and HIGH DUTY HUMIDIFIERS
Our VENTILATING Type of Humidifier (Taking fresh air into the room from outside)
Our ATOMIZERS or COMPRESSED AIR SYSTEM
Our COMPRESSED AIR CLEANING SYSTEM
Our CONDITIONING ROOM EQUIPMENT
Our AUTOMATIC HUMIDITY CONTROL (Can be applied to systems already installed)
Our AUTOMATIC TEMPERATURE CONTROL
Are all STANDARDS OF MODERN TEXTILE MILL EQUIPMENTS

AMERICAN MOISTENING COMPANY
BOSTON, MASS.
RUSSELL GRINNELL, President **FRANK B. COMINS, General Manager**
SOUTHERN OFFICES, 276 Marietta St., Atlanta, Ga., No. Charlotte, N. C.

THE ARABOL MANUFACTURING CO.

OFFICES:
110 East 42nd St.
(New Bowery Savings Bank Building)
New York City

EXPORTERS—MANUFACTURERS—IMPORTERS
of any kind of Preparations for

WORKS:
Brooklyn, N. Y.
Cicero, Ill.
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SIZING SOFTENING FINISHING WEIGHTING

for all Textile Purposes
Sizing Preparations, Tallows, Filling Materials, Printing and Stiffening Gums, Rosin Soaps, Dextrines, Soluble Oils, 50%-75% Guaranteed

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P. D. JOHNSON, Georgia Representative, Atlanta, Ga. HERBERT BOOTH, Tenn.-Ala. Representative, Chattanooga, Tenn.

Cotton Industry As Part of National Economy

(Continued from Page 24)

when many of the smaller countries, like Czechoslovakia and Poland practically forbade trade with neighboring countries and a British Prime Minister went to the Poles to seek support for a policy of tariff protection. The United States, too, has shared in this spirit of national economic consciousness, but our better position than the rest of the world is in large measure no doubt due to the sanity which we have displayed in a period of world turmoil.

Yet, our world economic position is not insignificant. With only 5.8 per cent of the world's population and 5.3 per cent of the world's land area, we produced in 1920 84.4 per cent of the world's automobiles and motor trucks, 52.2 per cent of its pig iron, 49.5 per cent of its coal, 63.8 per cent of its petroleum, 4.7 per cent of its cereals, and 71.2 per cent of its cotton. But in cotton alone, of the textile groups, are we independent. During the period 1910 to 1922 we produced an average of 13,000,000 bales of cotton a year and exported an average of 7,000,000 bales yearly.

A significant point here is the change in the character of our export and export trade which has taken within the last century. Whereas in 1820 the bulk of our imports were of manufactured goods, there has been a steady change in this condition until in 1922 the bulk of our imports was crude foodstuffs, crude materials for manufacturing, and semi-manufactured goods. A condition somewhat different took place in the same 100-year period in respect to our exports. Whereas in 1820 about one-fourth of our exports were of manufactured goods, in 1922 the proportion was two-fifths, and this figure was not in line with the general trend in the years preceding. On the other hand, for raw materials used for manufacturing purposes, there has been a steady increase since 1820, whereas for exports the reverse is shown.

In 1919, according to the last census of manufacture, among the various manufacturing industries in the United States, cotton goods manufacture ranked fourth in point of number of wage earners employed and value added by manufacture respectively, and fifth among the industries in cost of materials and also in value of products.

We also find that the value of manufactured cotton products in 1921 was $1,330,577,093, as compared with $399,200,320 in 1899. Increases in specific items in 1921 as compared in 1899 were:

	1921	1899	% Inc.
Materials	$731,927,432	$176,551,527	314
Wages	340,815,012	86,689,752	293
Salaries	39,730,476	7,350,199	440

We find in regard to employment that Northern cotton mills are somewhat below the average in employment of all industries, and Southern cotton mills somewhat above the average. For every 100 persons employed in manufacturing in June, 1920, there were employed in December, 1923, only 87 and in January, 1924, 85. In Northern cotton mills for every 100 persons employed in June, 1920, there were employed 82 in December, 1923, and 80 in January, 1924. Southern cotton mills showed in comparison with the 100 persons employed in June, 1920, 114 in December, 1923, and 111 in January, 1924.

Wages showed that the average

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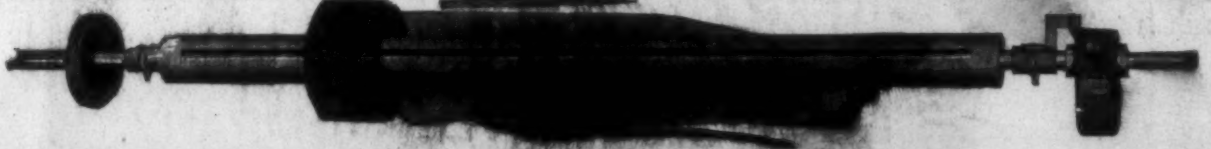
Textile Grinding Machinery Of All Kinds



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WHO'S WHO
AMONG
SOUTHERN MILL MEN

L. R. GILBERT.
(Caraleigh Mills)

L. R. Gilbert, superintendent of Caraleigh Mills, Raleigh, N. C., and a member of the Board of Governors of the Southern Textile Association, was born in Halifax County, N. C., on December 22, 1883.

L. R. GILBERT.

He entered the N. C. State College in 1904 and during his summer vacations worked in a small mill at Jonesboro, N. C.

After graduation he became superintendent of the mill at Jonesboro but later accepted a position in the office and supply departments of the Hamilton-Carhartt Mills at Rock Hill, S. C.

He was for a while superintendent of the Brown Manufacturing Company at Concord, N. C.

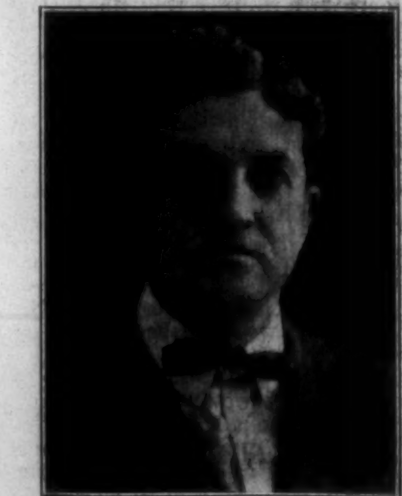
At the Caraleigh Mills he was at first timekeeper, then carder and spinner, and has now for about ten years successfully filled the position of superintendent.

Mr. Gilbert has been a close student of cotton manufacturing problems and has taken an active part in the work of the Southern Textile Association.

He is a man who has added to his college education much practical experience and with his combination of education and experience is peculiarly well equipped.

W. H. GIBSON, JR.
(Union-Buffalo Mills)

W. H. Gibson, Jr., is superintendent of the Union, S. C., plant of the Union-Buffalo Mills. He is a member of the Board of Governors of the Southern Textile Association and is prominently mentioned for chairman.



W. H. GIBSON, JR.

He was born in a log cabin in York County, S. C., on September 19, 1884, and began his mill career as a sweeper boy at 25 cents per day.

The death of his father when he was quite young threw upon him the support of his mother and young sister but he attended for seven years the night school at the Monaghan Mills Y. M. C. A. and also took an I. C. S. course and is regarded as one of the best informed mill men in the South today.

He has been an active factor in the work of the Southern Textile Association and his work as chairman of the Weavers' Division has caused much favorable comment.

He worked as weaver and loom fixer at the Limestone Mills, Gaffney, S. C., and then secured position as loom fixer at the Monaghan Mills, Greenville, S. C., where he was promoted to second hand. His first job as overseer of weaving was at the Capital City Mills, Columbia, S. C., after which he filled a similar position at Social Circle, Ga.

He became superintendent at Fairmont, S. C., and then went with the treasurer of that mill to the Union-Buffalo Mills.

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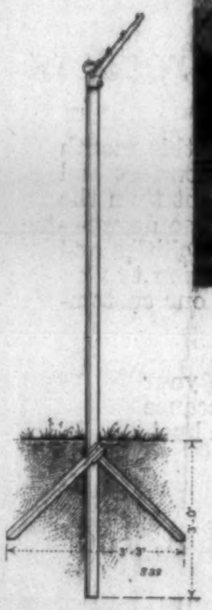

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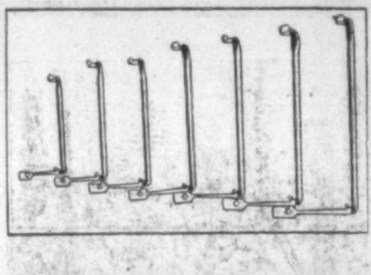

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W. H. HUTCHINS,
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Number Three

(Continued from Page 21)

frames had, it can be seen that production would be 25,942 pounds, or a difference of 3,242 pounds. Besides the tape driven spindle allowed a smaller twist multiple, produced a more evenly twisted yarn and made less soft yarn, thereby making a saving in waste as well as power required. Mill corporations will hire the best brains that money can buy and select best of cotton for quality. These are all good. So is a rabbit's foot, but the greatest asset to any mill is modern equipment from the power plant to baling press. Design governs both humans and machines. To equip a mill for specific product and attempt to go beyond the elasticity of the plant's product is an expensive proposition. I have known mills having small gauge machinery try to produce coarse yarns. For instance, 7x3½ roving and 2¾ gauge spinning, with 5-inch traverse, 1½ and 1¾ rings. Better find some other field of labor where competition is not so keen. There are a number of valuable improvements and special machines that spell economy to some mills that only spell disaster to others, in attempting to rebuild old machinery that should be replaced. Human hands have never been as reliable as mechanical genius. We demand the latest and best in transportation, education and living conditions. Should we accept less in the greatest industry in our Southland? With the eyes of all the world focused on the developments of the next 25 years, the many purposes for which cotton products can and will be utilized in future years will require more specially designed machines than I fear has been anticipated by some who will attempt to cater to market conditions. Necessity will always govern some portion of demands for the mills' production, but the trend of style will also play its part, even as now.

The grass is always greener on the other fellow's lawn and while no one, or several designs of textiles will create sufficient demand to keep every spindle of the increasing millions of the South going steadily, but variety of specialization will turn the trick and mills with proper equipment will get their turn at the bat.

J. V. W.

Number Four

I will take roving frames for my subject, for I believe they are the weakest part, and I hope some of the other boys will come on this subject and help to make it as strong as possible. In my opinion there is more bad work made on roving frames than any other part of the mill, such as soft roving, tangled roving, thick and thin places, and oily spots. Almost everybody blames the carder with this, but it is not altogether his fault. I blame the frame for some of it, and I am going to try to show why and suggest somethings that will help if put in practice.

I worked on some frames once that were built in 1867 and they produced practically as good work as the frames that are built today.

You may select the best cotton that can be found, pick it, card it, and comb it until it is as clean as an angel's robe, then butcher it up on the roving frame and it won't be worth a cent.

The first things that I want to mention are the cones and cone belt. They cause more trouble than most people think they do. I have been a boss carder and have run a section, and have been cussed out many times for putting rosin on cone belts, but I consider that anything that can be put on a belt to make it pull is better than letting it slip. Why does it slip? It is overloaded.

All cone belts on frames slip at certain times and that is when the soft roving is made. Just go to the spinning room after it has been raining for two or three days and take a look at the soft roving. Then see how bad the spinning is running, then go to the weave room a few days later and see how bad it runs, then you will agree with me.

I want to suggest that we make our cones larger, twice as large if possible. That will give us more pulling contact for the belt. If a ball bearing, self-adjusting idler could be placed so it would hold the belt on about three-fourths of the circumference of the cone that would help some more. Ball bearings on all parts of the frame would help, and then if cone bearings could be made so they would be easy to take off when you want to put on an endless belt that would help. Then if shipper guide was made adjustable so it would fit the belt perfectly and hold it just where it should run that would also help. If all bobbin and spindle gears were cut instead of cast that would save power, increase production, eliminate lots of bad work and waste. If bobbin gears were made with ball bearings and so rigged that they wouldn't jump out of mesh, and could be properly lubricated that would take a lot of the load off of the cone belt, reduce tangled roving to a minimum, and prevent many oil spots from getting into the goods. If bolsters were made with adjustable ball bearings at the top that would reduce friction and vibration. If there could be a pipe line run on spindle and carriage rail so that each spindle step and bobbin gear could be oiled at the end of the frame that would make oiling more sure and save labor.

If flyer presser fingers could be made so they would give the proper tension without having to be wrapped three times by human hands that would stop lots of soft roving, prevent arguments and a long chain of trouble. Look over your frames, boys, and see how many you have got wrapped just one time, then look at the roving and see if you think it is worth a cuss.

TOM CAT.

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Cotton Industry As Part of National Economy

(Continued from Page 30)

employee in the Northern cotton manufacturing industry was considerably better off than was the average employee in manufacturing. Average hourly earnings of all wage earners in manufacturing were 24.5 cents in July, 1914, and 55.8 cents in January, 1924. Average weekly earnings in the same period for Northern cotton mills were 17.6 cents and 46.9 cents, respectively, and for Southern cotton mills 11.7 cents and 35.1 cents, respectively. These figures represent, however, money earnings alone. If these money earnings are translated into terms of purchasing power, we find that whereas in February, 1924, the average employee, measured by his real hourly earnings, was 40 per cent better off and by his real weekly earnings 32 per cent better off than in July, 1914, the average employee in Northern cotton mills was 63 per cent better off, measured by his real hourly earnings and 36 per cent better off, measured by his real weekly earnings, while the Southern cotton mill employee, measured by real hourly earnings, was 89 per cent better off and measured by real weekly earnings 71 per cent better off.

Meeting of North Carolina Mill Men.

Hunter Marshall, Jr., secretary, is engaged in preparing the program for the meeting of the North Carolina Cotton Manufacturers Association, which will be held at Blowing Rock, June 27-28. The Mayview Manor Hotel will be headquarters for the convention.

The first event on the program is a golf tournament which will be held the afternoon of Friday, June 27. The annual banquet will be held Friday evening, the chief speaker being T. A. Daly, of the Philadelphia Record staff. Other speakers secured for the meeting are J. E. Sirrine, mill engineer, of Greenville, S. C., and Whiting Williams, nationally known author and lecturer. Other speakers are to be announced later.

The business session will be held Saturday morning at which time officers will be elected and other business transacted. Bernard M. Cone, of Greensboro, is the present president, and E. C. Dwelle, of Charlotte, is vice-president. Following the usual custom of the association Mr. Dwelle will be elected president for the next term.

Mr. Marshall says that the manufacturers are manifesting much interest in the meeting. The South Carolina Association is to meet at the same time and place and the joint meeting is proving a drawing card in both associations. While separate business meetings will necessarily be held other meetings of the two associations will be joint affairs.

Cotton Production in Syria Increases

The 1923 Syrian cotton crop showed an increase of about 2,650 bales over that of 1922.

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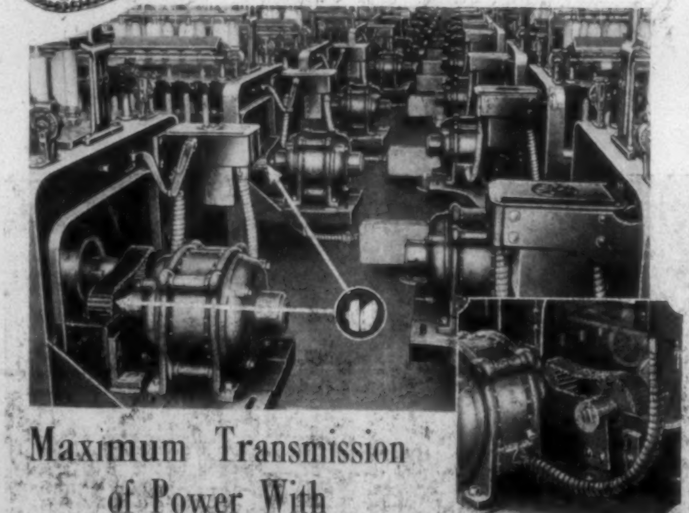

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BOBBINS
MONTICELLO, GEORGIA

New England Ponders

By Edwin Dakin in Commerce and Finance.

If winter comes . . . .

New England is wondering about the winter. Not a season of ice and snow, but a period of frozen industry. She has been told that industry has ceased to grow in her climate. That the cotton mills, whenever the time comes to expand, now go to the southland. That the atmosphere of her labor legislation has a noxious taint. That she has become isolated, so the fertilizing streams of commerce no longer flow across her soil.

And New England wonders.

It is a strange thing—that self-consciousness in New England. Drop into Boston, visit a bank or two, a newspaper office, a mill treasurer, a broker. In the course of a day you are almost sure to hear the question asked once, or oftener—"Well, do you think we are slipping?" It is not asked in jest—the voice carries the most deadly seriousness.

The strange part is this consciousness. It would not be strange for one portion of the country to have outlived its period of active growth. But it is very strange that the people there should talk about such a change—should recognize it. Usually we don't recognize shifting conditions, when we live within their midst.

But New England is seeing with her eyes open. And withal, the average New Englander seems confronting the future with a spirit of resignation that strikes one as rather startling. "Perhaps we are going backward," said one banker, scion of the Mayflower tree. "Perhaps we are. But what can we do about it? What can we do?"

You will find mill treasurers who talk to you in the same way. "Remember," said one, "this is not a personal concern of mine. I am going to make money, and our stockholders are going on drawing dividends, no matter what happens to New England. If the worst comes to the worst, we can pick up the machinery and move our mill bodily to the South. Certainly our buildings will be no great loss. The same thing has been done often enough before. If the freeze-out must come, let it come. We have nothing to worry about."

Talk to ten different mill treasurers, and you will hear perhaps ten different reasons as to why New England's industrial future is dark. One man says that they can't buy cotton to such an advantage as the mill man in the South; "down there," said one treasurer, "they can get in an automobile on Sunday ride all around the country, and see for themselves what cotton is really going to do. Then they know how to buy. Up here we have to guess."

Another man will tell you that it's the double transportation charges, raw material to the mills and completed product back again to the consumer. A third will tell you it's lack of cheap power. "It's the fault of Baxter, Governor of Maine. He's got all the water power up in his state, and he tells us that if we want to use it we've got to pick up our plants and migrate up to his territory. Nice howdy-do." Another will tell you it's the 48-hour week labor law. Another will tell you it's expensive and discontented labor. Most of them seem to agree on the expense and the discontent of the labor.

"Massachusetts," said one prosperous mill treasurer, "is the only state in the Union with a 48-hour law. We pay our labor higher wages than our competitors pay in the South, and we get less work out of them. This might be all right if New England could continue manufacturing fine cotton goods with which the South could not compete. The trouble is that the South every year is eating into our line of fine cotton specialties. Today we make almost nothing that the South is not also manufacturing in some quantity or other. In a few more years the South will have mills that can supply the market with any sort of goods in any size quantities that the market needs. When that time comes we might as well say good night."

Another mill treasurer spoke feelingly on the same theme. "I want you to understand," he said with a dash of profanity, "that the people who passed this fool 48-hour law were our own stockholders. The reason, of course, was that in the grand, glorious brotherly feeling that grew out of the war they wanted to make the millenium on earth right now. They had nothing else to worry about except said millenium. The average mill stockholder up here inherited his stocks from his father, who in turn inherited them from grandfather—and as a result the present third generation of stockholders knows nothing more about stocks than that they're something to draw dividends with. What makes dividends, or how they come, these stockholders have no idea. Instead, they put in their time in thinking about idealistic schemes for the woiking gal. As long as the dividends come regularly, they have to invent other worries to fill up their time.

"You know, I've often really been tempted to pass a dividend up, just to get the stockholders down to the office the next morning. They'd be lined up there at that doorway at the crack of dawn, three abreast, and a block deep. As it is, I have to telephone around town to scare up three stockholders—the required number—to make up a stockholders meeting to take care of routine business. I suppose in one way, it's a good thing; if they did hang around much they'd pester me so I'd never get anything done at all. As long as the average stockholder is what he is, I suppose I'd rather have his room than his company. But I do wish they all had a little gumption."

That seems to be a rather universal complaint in New England—the

(Continued on Page 39)

SAFETY FIRST

Floors and aisles which are kept clear are undoubtedly safer. But what about the floors themselves?

Are they as safe to the feet of active, busy workers as they can be made by the use of

WYANDOTTE DETERGENT?

This cleaner not only insures protection by maintaining floors free from grease and slipperiness but it also provides a floor that is clean, sanitary and easy to maintain in this condition.

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Moreover, Wyandotte Detergent works so easily and quickly and is so harmless to the hands of the user that it proves a most profitable investment.

Ask your supply man

The J. B. Ford Co., Sole Mnfrs., Wyandotte, Mich.

VOGEL
PATENTED
Frost Proof Closets

Over 300,000 giving satisfaction. Save water; Require no pit; Simple in the extreme. The most durable water closet made. In service winter and summer.

Enameled roll flushing rim bowls.

Heavy brass valves.

Strong hardwood seat.

Heavy rivited tank.

Malleable seat castings will not break.

SOLD BY JOBBERS EVERYWHERE

Joseph A. Vogel Co. Wilmington, Del.

Relation of Fluidity to Sizing Value of Starches

(Continued from Page 17)

sizing to yarn is really a superficial deposition of the starch size upon the surface of the fiber rather than a penetration into the core or substance of the yarn. There is, as will be shown later on, little, if any, penetration of size between the fibers of the yarn reaching toward the center of the yarn and certainly none into the fiber itself. The following photomicrographs show yarns of different numbers and of different twists which were sized, some with thick viscous size and some with thin boiling starch size. The absence of penetration cannot be attributed to the wrong kind of starch or compound for different size formulae are represented, both different compounds and different starches thorough boiling and suitably high temperature in the size box, etc.

The darkened areas represent the size, the light areas the cotton fiber. These sized yarns were moistened and stained so as to show the starch, the yarn being opened by careful teasing with a needle so as to show the inner portion. It will be noted by the absence of dark color on the inner part of the yarn that there was practically no penetration of the size to the inner portions. There is, however, much of fundamental importance to what is generally spoken of as "penetration." Penetration so-called is in reality a flowing of the size into the pockets of the fibers on the surface of the yarn and a levelling off of the surface just as a good paint or varnish if it congeals slowly will level out and cause the brush marks to disappear. In like manner a slow congealing size will level itself to a smooth surface, and by flowing into the recesses will bond itself better to the yarn. If on the other hand, the size is insufficiently boiled and not freely fluid and sets to a jell too quickly, poor sizing and consequently poor weaving is the result. The anchorage of size is therefore in no case assisted by rootlets, if for the purpose of illustration we may use the term rootlets of size, extending between fibers to the core of the yarn. The anchorage is dependent upon the size flowing into the pockets of the surface fibers. English cotton mills formerly fermented wheat flour and by fermentation brought about two results. Fermentation not only separated the starch and destroyed the gluten, but it also brought about a thinning action and also gave slow congealing size, greatly improved as to adhesiveness and smoothness when dried on the yarn.

Advantages of thin Boiling Starch.

In the use of solutions of starch for sizing, two extremes must be avoided, one, the too thick size which will not flow and can only be pasted on the high spots or surfaces of the yarn, and the other extreme, that of too great fluidity which on account of lack of viscosity will not adhere to the yarn in sufficient amount to give a film of sufficient thickness to resist the chafing during the weaving of that particular style. Solutions of the modified or thin boiling starches are both more fluid and slower congealing than those of the unmodified or crude natural starches.

Making Thin Boiling Starches.

Starches in their natural or unmodified state form thick viscid solutions characteristic of the soluble amylose portion, which, as previously pointed out, is thick and viscous like egg albumen, and there is also a further thickness or sluggish flow due to the floating cell sacs. If starch granules are left to stand in a weak acid solution for a time, the viscous character is wholly or partially destroyed, according to the strength of the acid, the temperature, and the length of time. This change can take place at temperatures below that necessary to swell and burst the granule. The acid penetrates through the outer amylopectin wall and thins or "modifies" the inner amylose. After this has acted for a sufficient time to effect the desired modification, the acid can be washed away or neutralized, and the modified starch may be dried. This dried, modified, or "Thin Boiling," starch in appearance shows no change from the natural or unmodified starch. Methods differ but in general treating starch with weak acids and then neutralizing or washing away the acid is what the starch manufacturer does in making the thin boiling starch for textile mills.

Amount of Conversion.

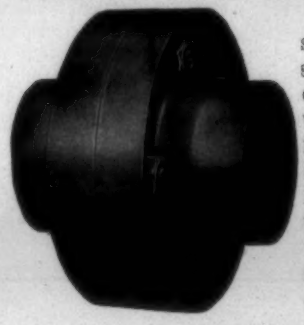
Thin boiling starches are sold with brand numbers designating different fluidities.

The starch manufacturer can by various processes so convert the starch that not only is congealing delayed, but by suitable conversion methods congealing may be entirely done away with, so that a solution of the usual sizing strength of from 10 to 20 ounces per finished gallon may be so made as to remain perfectly fluid and transparent, even when cooled down to room temperperature of 70 degrees F. They can be so converted that they will remain fluid and transparent for weeks. The fullest possibilities of conversion have not been brought to the textile manufacturer, partly because of higher cost, and partly because of his conservatism. In time these greater possibilities will undoubtedly be appreciated and made use of. The English method of modifying wheat starch by fermentation required several weeks but gave an excellent sizing, very slow congealing, very adhesive, yielding smooth well sized yarn. This same conversion can now be effected in a very much shorter time by processing the wheat starch during its manufacture, so that fermentation by the user is unnecessary.

Chemicals in the Size Kettle.

Starch is extremerly sensitive to acids. Any trace of acid not removed by the manufacturer, or acid that may be formed by fermentation or souring, lessens the viscosity with extreme rapidity at the boiling temperature of the size kettles.

PULLEYS HANGERS
The T·B·WOOD SONS CO. Line
CLUTCHES
COUPLINGS
FLANGE OR PLATE COUPLINGS



Designed to withstand severe lineshaft service. Flanged to protect the workman from being caught on the bolt heads or nuts. Machined all over to template, making them interchangeable and therefore easily duplicated.

Interchangeability is a feature that has made THE T·B·WOOD SONS CO. LINE of Power Transmissionary Machinery the standard in so many of the country's largest plants.

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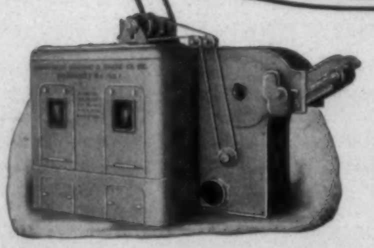
POWER TRANSMITTING MACHINERY

Complete Equipment
Cotton Machinery
Built by Specialists



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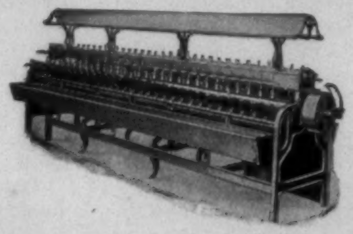

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FOR MORE THAN FIFTY YEARS

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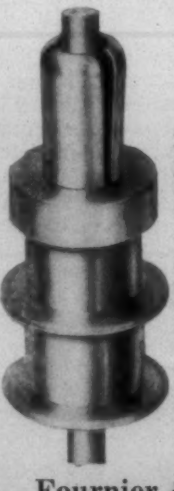
Fournier & Lemoine
Manufacturers of Patented
CLUTCH SPINDLES
for use on
Spinning and Twister Frames and Quiller Collars



All Kinds of Spindles Repaired

A few of the advantages of our Patented Clutch on twister spindles are:

The elimination of slack twist by the bobbin rising on top of driver; more uniform filled bobbins; doing away with Knee Breaks; cutting down bobbin expense 50 per cent.

Fournier & Lemoine
Linwood, Mass.

Alkali, on the other hand, thickens the starch solution by dissolving a portion of the amylopectin. Certain chemicals other than acid and alkali, such, for instance, as zinc chloride or calcium chloride, affect the viscous character of the starch solution. This thinning effect continues as long as the chemical is present. The result is a continuing change in the viscosity or fluidity of the size. Chemicals in the size kettles are, therefore, dangerous and should be avoided.

In theory, it is possible to add certain chemicals to the starch in the size kettle and convert the unmodified, thick boiling starch, to the more serviceable thin boiling type, and save money by so doing. In practice this does not work out, for the simple reason that no set of conditions such as percentage of chemical, ratio of water and starch, time, and temperature, all of which are important factors, cannot be positively controlled without the services of a chemist, and even if they were accurately controlled, the results would not be uniform, since different lots of starch react differently, due to variation both of maturity of growth of the starch granules and to impurities always present in the crude starches.

Just about as much success would attend the attempt to save money by modifying starch in the starch kettle of the average mill as for the mill superintendent to practice medicine to save the doctor's bill.

The conversion of starch to the thin boiling state is carried out by the manufacturer by a slow process which is under control. The thinning action of chemicals in the size kettle takes place in a few minutes and cannot be controlled to any definite fluidity simply because of the very short time and rapid rate of conversion.

Diastase Conversion.

Diastase is an organic chemical that will convert starch from thick to thin boiling and if conversion is carried on sufficiently the starch will be converted to a sugar called Maltose. The use of Diastase has been proposed as a modifying agent for making starch thin boiling.

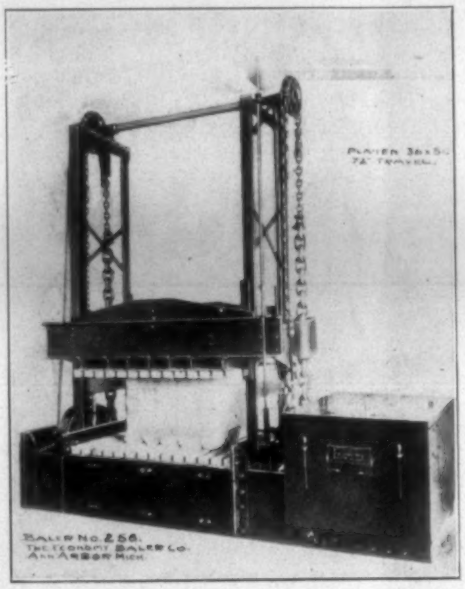
A Chemical Factory in Every Seed.

Nature performs an interesting series of chemical changes. Starch is built up by the plant into the complex starch molecule apparently from such simple substances as carbon dioxide and water, and in another part of nature's cycle of growth she developes another substance, Diastase, solely for the purpose of attacking and tearing down this complex starch molecule. Time, in the presence of heat and moisture and that unknown something that vitalizes the seed germ into life, develops in every seed, diastase or a substance similar to diastase. Diastase can be developed by germinating seeds and can then be extracted and reduced to a powder form. Diastase dissolves the starch granule into a soluble form. Several persons have suggested the use of Diastase in the size kettle for converting starch, the process to be arrested before the conversion to sugar is complete. Any process of

(Continued on Page 40)

ALL STEEL ECONOMY FIRE PROOF CLOTH PRESS

HEAVY DUTY NO. 258. PLATEN 50 x 36



This Economy Heavy Duty Cloth Press No. 258, has a platen 50 x 36 inches. Platen travel of 72 inches. Equipped complete with Direct Connected Electric Motor.

Press will develop tremendous pressure, ample for the baling for Export and Domestic shipment of Duck, Khaki, Osnaburgs, Sheeting, Print Cloths, Ticking, Twills, Denims, Drills, Lawns and Shirtings or for compressing ginghams. Requires only about one minute of actual motor operation to make a Bale of Cloth.

Press maintains its maximum pressure indefinitely, until released. Unlimited compressing platen stroke. In other words, platen will travel as low as is necessary to completely compress the bale, regardless of the third dimension, as the platen can go down to within four inches of compressing platform. Entirely self contained, requiring no cement foundation, pit, over head counter-shafting, chain connections, etc.

Chains are hand forged Swedish steel. Will stand over 50 per cent over load, a greater load than can be exerted by the motor pulling up to 40 H. P. torque.

Write for any special information.

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SOUTHERN DISTRIBUTING COMPANY
50 Market Street, Charleston, S. C.
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Manufacturers and Distributors
—of—
Stauss Rectified Tallow, Oil and Gums for all warp sizing and finishing purposes

THE GREATEST IMPROVEMENT MADE IN COTTON SPINNING IN QUARTER OF A CENTURY

The Richards-Hinds Light Running Rolls

Over 2,000,000 Spindles Equipped to Date

Guaranteed Claims

Cockley Yarn Preventor
Extra Strength of Yarn
Less Waste
Greater Production

Less Change of Roll Settings
Reduced Cost of Spinning
One-third Saved on Leather Covered Rolls
Better Spinning with Improved Product

All machine builders are agents and will quote prices for new work.
Also for prices and particulars write to

The Metallic Drawing Roll Company
Indian Orchard, Mass.

THEY LAST LONGER

When Barber Spinning Tapes drive your frames you may be sure of obtaining the maximum amount of service. There are no driving tapes on the market that can equal them for strength and length of life. The savings in tape effected by the use of Barber's will quickly amount to a considerable sum.

Even before the first tape driven cotton frame was in operation these tapes had proved a great service on worsted and jute drives. The first company to manufacture driving tapes, the Barber Mfg. Co. has always maintained its position as leader in its field.

Tapes for all drives, including cotton, worsted, jute and silk.

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199 Perkins St. Lowell, Mass.

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SPINNING & TWISTING TAPES

Fire Without Having A Cleaning Period On

For Use with Either Natural, Induced or Forced Draft
FOR DETAILED INFORMATION WRITE
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DIASTAZYME

A product for the conversion and removal of starches, sizings, etc.

DIASTAZYME is especially adjusted for textile use, having high starch liquefying power.

Ask for sample
The product will prove itself

Jacques Wolf & Co.
PASSAIC, N. J.

Modern Textile Machinery and Equipment

(Continued from Page 11)

machines are made of highest grade materials obtainable and are proportioned sufficiently heavy so as to be absolutely rigid. The modern machine is much simplified in design and adjustment and can be operated and kept at highest and uniform speeds without vibration and as a result we have equipment of great efficiency, low cost of maintenance, uniform speeds, highest production, with minimum power requirements and smallest number of operatives, all of which results in the lowest cost possible in manufacturing textiles and in the best quality of product.

The parts for today's machines have been standardized to a great extent and supplies are easily obtainable and some of the large machinery concerns have supply stocks as well as repair and erecting organizations in the South, giving a very valuable service to the mills.

In addition to the economical advantages, modern machines are much neater in appearance and are built with as little wood as possible, especially opening and picking equipment which is now made practically fireproof. The machines which have to be cleaned out underneath have openings which are much more accessible than on the older types. Important improvements have been made in grids, eveners, bearings, methods of driving and in safety devices. The settings on machines now are practically perfect and this is of great importance specially in a card. modern cards are built so that the top of the coiler can be lifted for oiling and without disturbing the sliver nor stopping the machine. All circular parts, pulleys and cylinders are accurately balanced and all of the important gears in a modern mill's equipment are machine cut.

Drawing frames have been greatly improved and in providing those built with four deliveries per head and having automatic stop motions the maximum production is obtained. The drawing frame, due to its very purpose, is the most severe process which the stock undergoes in the mill but the modern frames equipped with their many improvements accomplish their work with a minimum damage to the fibre.

Great improvement has been made in roving machinery and spinning, as well as twisting, and modern frames have much more accessible gears and have better transmission and lubricating arrangements. The sampsons are adjustable and rigid, bearings improved and the entire frame, as well as flyers and spindles, is perfectly balanced. Flyers and other parts which were formerly imported are now made in some of the American shops. Spinning frame cylinders have been improved in design and are heavier and, due to their satisfactory construction, the frames are driven at the end opposite from the gearing. This makes the gears all accessible and safety devices are provided which prevent the opening of the gear end covering doors while the frame is in motion and prevents the starting up of the machine while the gearing is exposed. Creels have been much improved, shafts and rolls are case hardened, and frames are built of a height convenient for the tenders.

Tape drive for spinning, spooling and twisting frame spindles is one of the greatest improvements which has been made in recent years and an example taken from a mill will illustrate this. The life of a spindle tape is fully three or four times that of the best band and in a mill an accurate six months record of cost was made on band driven and tape driven spindles. For the same number of frames there were formerly required three banding boys whereas with a tape drive only one was needed. In this 25,000-spindle mill, over the six months period, the band driven frames showed a cost of over one thousand dollars more than the tape driven.

The advantages of tape drive are now generally known, such as less slippage, more uniform speeds and uniform twist. Filling wind for all spinning frames has passed the experimental stage and the troubles which were experienced in spooling have been practically overcome and satisfactory tension devices are available.

In an old mill, with short old type narrow gauge spinning frames of light construction, it is not unusual to find the frames running 20 to 25 per cent under speed. In fact, on such frames 80 per cent of catalogue production is about all that can be expected. The advisability of replacing such spinning can easily be determined by comparing cost figures for the old frames with figures on new machines. As an example, we will say that an old mill making 18s carded yarns is running with a front roll speed of 115 turns a minute with a spinning room cost of 2¼ cents a pound and assume that five cents a pound is considered a fair profit. The proper new spinning frames for making 18s yarn with best extras, such as wide gauge, tape drive, filling wind, metallic thread boards, and individual motors, would cost today approximately $7.35 per spindle, erected, and the

KNOXALL ROLLER CLOTH
(Virgin Wool)

Edward H. Best & Company
222 Purchase St.
Boston, Mass.

results for a year of 300 working days, or 50-55 hour weeks, would be about as follows:

	New Frames	Old Frames
Front Rolls, R.P.M.	144	115
Pounds produced per spindle per year of 2,750 hours	123.75	99
Additional pounds produced per spindle per year of 2,750 hours	24.75	
Spinning Room cost per pound, cents	1.80	2.25
Saving in Spinning Room cost per pound, cents	.45	
Saving in cost per pound per year, cents (123.75 lb. at .45 cents)	55.68	
Profit on additional poundage (24.75 lb. at 5 cents	$1.23	
Additional profit per spindle per year	$1.79	

The writer is familiar with a plant which formerly had 138 spinning frames, 82 of which were 208 spindles each, 28 were 224 spindles and the balance 256 spindles each, all narrow gauge. These frames had served their usefulness and were very expensive to operate. They were replaced a few at a time and in this original spinning room was provided 112-204 spindle tape driven 3¾-inch gauge filling wind frames, without separators, and with 2-inch rings with 7-inch traverse. In other words, the 22,848 new spindles took the place of the 30,496 old spindles and are getting off a very much larger weekly production than the old frames, to say nothing of the advantages being gained by less frequent doffing, more even and better quality yarn, low manufacturing cost and better running work. This is one of a number of mills which could be cited.

Great and important improvements have been made in combing, winding, warping and slashing equipment and almost any number of improvements in looms, especially those for fancy goods, but it would hardly be possible here to more than merely mention these. Improvements in modern dyeing, bleaching and finishing machinery could best be described along with changes and improvements which have been made in methods in the dyeing and finishing plants.

New England Ponders.

(Continued from Page 35)

country is content to live on its money—on its past capital. New England has larger savings deposits per capita than any other section of the country. Everybody has tucked away—whether in mattress or strongbox—something on which dividends can be drawn. From such dividends New England frugality usually manages to save something to put back into capital.

"We have the money," said a broker. "Our capital is flowing out into every great industry in the country. It is building up almost every state in the union, except our own. What we seem strangely to lack is the initiative. Does a race peter out? All I know is that we haven't got the push and go here that the country once had.

"Our young men, when they grow up, no longer stay here. When they start to build a career, they don't want to double their hardships by having to swim against the stream. It's too easy to go elsewhere, where the stream will carry them along with it. So they take their initiative elsewhere.

"What we need is the determination to devise ways to keep our capital at home, and develop our own country. It can be done. We find things to manufacture whose bulk is not large, and hence will not pile up freight charges; yet things whose manufactured value is high. We have here the most skilled labor in the country. We can utilize it for fine manufactures on which we will not face runious competition. In many of our coast cities cotton mills were developed by the sheer force of determination only after the fishing and whaling industry passed out. Our fathers saw that some new enterprise would have to be introduced to take place of their old livelihoods. Cotton manufacturing was established as the result, in many cases, of a cooly premeditated plan. We can do the same thing now, with something else.

"In wool manufacturing, for instance, we are not facing desperate competition. Our woolen mills can afford to pay higher wages on that account than can the cotton mills. This fact has caused some strange conflicts in a few companies whose cotton mills stood side by side with woolen mills, who perhaps owned both sorts of plants, and had to use two different schedules for equally skilled labor—one for labor in the woolen mills and another for the cotton spinners. The cotton laborer of course could not understand why they should not receive the same wages as were paid in the woolen mills.

"But such a condition, anomalous as it appears, points the way out. Let us grant, for the sake of argument, that conditions are not going to become more in New England's favor. Let us grant the hardships we are going to face. We can overcome them merely by a slight shift in manufacturing program, if we only have the determination.

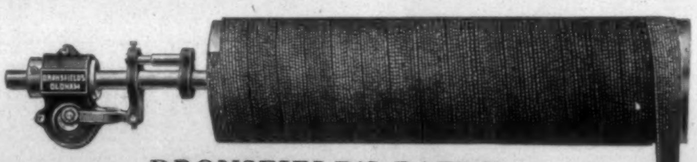
"Our future doesn't depend on cotton. It depends on initiative. With that we shall win. Without it we can not help but lose."

Most of the talk heard by the traveler in New England runs in that vein. Some of it is entirely resigned in its reflection; some of it is modesty hopeful. All agree on the need—the pressing need—for initiative. But initiative itself is scarcer than is the talk about it. You find it only after looking for it. That is why the words of one mill treasurer should be quoted in full. He refused to be either merely hopeful or resigned.

"Since the end of the last century," he says, "there has been talk of New England mills shifting southward. I know of at least one that was once all ready to go, even had

(Continued on Page 42)

Save 50 per cent. operative power
Produce more even yarn
TAPE-DRIVEN TWISTERS
COLLINS BROTHERS MACHINE COMPANY, Pawtucket, R. I.



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TRADE MARK ATLAS
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Used the wide world o'er and recognized by every race as the
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Offices:
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We gin over 15,000 bales of cotton annually, and would ship from gin to mills on type.
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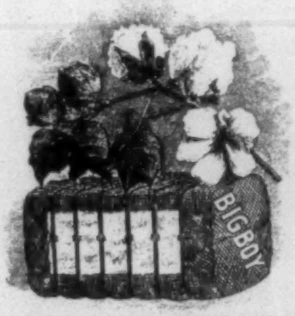

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Relation of Fluidity to Sizing Value of Starches

(Continued from Page 37)

this kind which attempts to carry out the conversion to a definite end point in the size kettle will prove unsatisfactory. Many ideas for converting starch in the starch kettle have been brought forward in the past and more undoubtedly will be suggested in the future. All alike seem doomed to failure, simply because there is an enormous amount of conversion change to be effected and as the process is limited to an hour or two in the size kettle of the average mill, it is impossible to check the process at the critical time. A uniform conversion therefore seems impossible, in fact, no two batches of size will produce identical fluidity or viscosity, except by change. With further reference to the use of Diastase in Sizing, Bean and Scarisbeck in their book on the "Chemistry of Sizing" say on page 119:

It is doubtful whether it can be applied with any measure of success. There are too many chances of the starch being spoiled in the process and it is really beyond the powers of an ordinary size mixer to get uniform results with it.

Sizing Compounds and Softeners.

Tallows or greases or oils are used in almost every size formula. With crude starches they are necessary. With all starches they are helpful. These tallows or greases aid in retarding congealing and thereby make a smoother yarn. The denser the size the more grease will be required.

Dextrines, soluble starches or gums may be added to size with advantage. They increase adhesiveness and add to the weight of the finished fabric. If added in large quantities an additional amount of grease should be added to avoid undesirable stiffness or even brittleness of the sized yarn.

Deliquescents and antiseptics are very beneficial, in fact, they should be considered an essential of every sizing formula. The reason for high humidity in the weave room air is that moisture may be absorbed by the yarn from the air. The benefit in the way of added strength and suppleness of the yarn is known to everyone concerned. Some chemicals are both antiseptic and deliquescent as, for example, zinc chloride. It should also be borne in mind that maximum strength and suppleness are impossible when the sized yarn is over-dry. The addition of chemicals like calcium, zinc, or magnesium chlorides to aid the yarn in taking up moisture from the air is a common practice, but is attended with much danger for the reason that an acid reaction develops when chlorides are used. Such liberated acid tenders the cloth during the singeing process of the finishing plant. It is therefore, preferable to avoid the use of these chlorides.

Glycerine adds suppleness and strength. A substance like glycerine has not only the advantage of harmlessness, but if present in sufficient amounts prevents the over-drying of the warp by the slasher man with the advantage that the warp is immediately ready for good weaving. Warps containing glycerine do not have to wait for regain of moisture from the air. It should be kept in mind that when glycerine is used an antiseptic must be added to avoid danger of mildew.

Mildew.

With perfectly dry warps there is no danger of mildew, but with a damp warp the danger of mildew is present. It takes a skilled slasher man to avoid either too dry a warp, which means brittleness of the yarn, or too damp a warp, inviting mildew. Between 6 to 8 per cent moisture left in the sized warp yarn with an antiseptic present to prevent mildew, is the best practice. The warp will be stronger, the yarn will be more pliable and will weave better, and the danger of mildew is avoided.

Protectives Against Mildew.

There are only a few antiseptics entirely suitable as preventives against mildew. The best preventives are possibly, thymol, resorcinol, naphthalene, benzoate of soda, benzoic acid, and cresol. Three ounces of any of the above to each 100 pounds of starch is effective as a preventive of mildew. If boric acid is used as an antiseptic, approximately 20 ounces are required as the equivalent of 3 ounces of benzoic acid. Six ounces of formalin is effective for immediate sterilialin isshrdluetaoinshrdlu nononono zation, but as formalin is a 40 per cent aqueous solution of formaldehye, the latter being a gas, this active substance, formaldehyde, disappears on drying the yarn and is lost, so the protection of the warp against mildew during the stay of the warp in the weave room is lost.

The following are less favorable antiseptics:

Alum is objectionable, because acid and thins the size.

Copper sulphate, blue stone, behaves much like alum due to its acid effect.

Borax is objectionable because alkaline. It darkens the size and affects unfavorably the wool blanket.

Zinc chloride, acid reaction. Thins size, injurious to fiber.

Corrosive sublimate, extremely poisonous; its usefulness is destroyed by brass or copper.

Cresol, objectionable because of odor.

Salicylic acid, turns size pink to red with traces of iron.

Formaldehyde vapors arising with steam are irritating.

It should be borne in mind that the spores which start the growth of mildew are always present in the air, and await only a favorable opportunity in the presence of moisture and food. These spores find food for nourishment and growth even on yarn which has not been sized, as, for instance, the filling yarn, which, of course, has no size.

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Mildew will grow on filling yarn under proper conditions of moisture and temperature, but a warp yarn with a sufficient amount of antiseptic present seems to quite effectively discourage growth of mildew even on the filling yarn.

In brief, summing up let us bear in mind that the warp which requires but 30 minutes in the sizing operation requires 30 to 60 or even 90 days in the weaving operation and that the time required for weaving may be greatly lessened by the most efficient sizing. Also that uneven sizing due to variation in viscosity of the starch size solution results, not only in curtailed weave room production, but also in uneven weight of the woven fabric and that any shortage of weight must be made up with cotton costing from forty to sixty or eighty times as much per pound as the sizing. Is it not, therefore, well worth while to study the causes of variation in sizing and to adopt means to avoid variations in the viscosity and fluidity of the starch size solution? Obviously, therefore, not only that the weavers may be better satisfied, but also that there may be the satisfaction, the pleasure, and the profit of work well done, should not every step and every precaution be taken to insure such accuracy and uniformity as will bring perfection nearer?

What the World's Cotton Goods Markets Are Doing

United States Cotton Goods to Non-Contiguous Territories.

Cotton cloth shipments during February, 1924, from Continental United States to Alaska amounted to 38,249 square yards valued at $10,532; to Hawaii, 464,760 square yards worth $126,272; and to Porto Rico, 2,555,563 square yards with a value of $500,806. Comparable figures for the corresponding month in 1923 are as follows: To Alaska, 19,822 square yards with a value of $5,026; to Hawaii, 778,625 square yards worth $183,318; and to Porto Rico, 3,540,122 square yards valued at $623,723.

Cuba.

Expectations of active business in textile goods with the opening of the sugar grinding season have not materialized, and various dealers report less favorable business than for the same period a year ago. Some houses have made a large volume of sales but only by means of forcing the market by price reductions. Importers have experienced difficulty in making collections from the interior and there has been a resultant tendency to restrict the acceptance of orders. The number of textile salesmen from European houses, notably German and Italian, who have visited Cuba in recent months has been marked. —Commercial Attache Chas. H. Cunningham, Havana, March 25.

Dominican Republic.

Importations of cotton and manufactures for 1921 were valued at $1,721,571 and for 1922 at $2,118,598. It is believed that during 1923 imports were greater than for either of these two years. American cloths encounter active European competition especially from England, France and Switzerland. The sale of voiles is probably even larger than in similarly populous localities of the United States.—American Consul C. B. Hosmer, Santo Domingo, March 14.

Italy.

Prices for cloths in general have declined and no substantial increases are foreseen. Great Britain continues to ship goods of fine quality to Italy for which the demand has been increasing despite the restricted purchasing power of the country as a whole. Exports are good for ordinary qualities of zephyrs, Maddapolan, oxfords, dress goods, and novelties in general, and Indian cotton is being mixed with American whenever possible in order to reduce the cost. It is said that the export business would be much better in the Balkans and Near East if it were not for the unsatisfactory financial situation prevailing there. Much of the trade done there at present by the Italians was formerly in the hands of Austrian and German mills.—Assistant Trade Commissioner J. Allen Palmer, Rome, March 10.

India.

The piece goods market is quiet, but it shows signs of improvement. February imports of cotton piece goods aggregated 121,942,000 yards, a decline of 39,407,000 yards compared with January. The largest decrease occurred in India's foreign purchases of grey goods which dropped from 90,501,000 yards in January to 60,634,000 yards in February, while those of bleached goods declined from 40,753,000 to 32,962,000 yards, and colored cloth from 30,095,000 to 28,346,000 yards. The United Kingdom in February supplied 88 per cent of the grey, 96 per cent of the white, and 89 per cent of the colored cloth imported. Japan is credited with 10 per cent of the grey and 4 per cent of the colored, while the Netherlands furnished 1 per cent of both the white and colored, and 2 per cent of the white goods came from Switzerland.—Cable from Consul General A. W. Weddell, Calcutta, March 28.

Chile.

No particular change has been manifested in the textile market. While the buying of textiles has been less active during the past month than it was in February, inquiries have been received in increasing numbers.—Commercial Attache R. H. Ackerman, Santiago,

China.

Hongkong is rapidly coming to the front rank among the leading shipping ports of the world and in consequence there is a splendid market for canvas with excellent prospects for increased sales in the future. Large quantities of canvas and gray ducks are consumed annually in Hongkong as well as in the neighboring territories which are commercially dependent on this port. These fabrics are used as awnings, hatch covers, sails and for other general purposes by the numerous junks, motor boats, launches and coasting steamers which operate in and out of this port. The native junks generally use a closely woven matting for sails, but the employment of canvas for this purpose is gradually increasing.

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New England Ponders.

(Continued from Page 39)

the location picked out, and then decided to stick by New England a little longer. It's still here, and what's more, it's still paying dividends.

"There's plenty of mills that are still paying dividends, and haven't had to establish southern branches to do it. There's too much talk about bad conditions, and not enough about good management. Look at some of the records of various companies. You'll find that for long periods under one treasurer they prospered; for long periods under another treasurer they didn't. Management is more than half the battle.

"Suppose that New England can no longer compete with the South in the matter of price. That is not a crying matter. The American consumer is not interested merely in price. He wants trade-marked goods of quality. He will buy quality every time. With a name behind it.

"That is New England's great opportunity today. As a manufacturer of fine cotton goods this part of the country has a reputation of almost a century's standing. No one can compete with that reputation. The only pity is that we didn't put it in a trade mark—commercialize it, that is, long ago. Well, some of us are going to do it now.

"Take the name Wamsutta, for instance. There you have a mill which is supporting a national advertising campaign to tell the house wife what that name means on sheets and pillow cases. Down in the corner of their usual ads for sheets and pillow casing is a small diagram showing the result of laundering tests on their product, as compared to the competing product of other—unnamed—manufacturers. They tell the housewife how many more launderings their own product will stand than the sheets and cases of some of their competitors. They try to show her why, in other words their product is better. And at the same time they are impressing on her consciousness the value of the Wamsutta name, as guaranteeing quality.

"You will notice that the program of the Wamsutta people involves going direct to the consumer. That as I see it, is the eventual solution of the New England problem. Eliminate expensive middleman profits. Cut down those charges, sell direct to the retailed wherever possible, and then the New England mill can sell at a more advantageous price while maintaining its own profit. In addition, there is the advantage of direct consumer contract which in times of stress is invaluable."

A large Eastern banker—and, incidentally, a large stockholder in some of the New England mills—carries the idea even further than the mill treasurer. His own solution of the problem is as follows:

"Some day—I see it in the distance —there is going to be a large amalgamation of the more prosperous New England mills. By the words more prosperous I mean simply that no weak sister must be included in the organization. Only strong mills with the most progressive spirit must be included, if they are to have success. Eventual elimination of the weak ones is perhaps inevitable, anyhow.

"With such an amalgamation each mill can specialize. More important still, they can throw their combined weight into an effort to reach the consumer directly. What is to prevent, for instance, the establishing of a whole chain of retail distributing centers? Why could not the mill set up their own retail stores, and ship direct from machine to the hands of the public? You say that the public does not buy mere raw material; it buys cotton goods principally after they are made up into merchandise. Well, why should they not establish their own manufacturing plants for clothing, for sheets and pillow cases, for everything the public needs? Such an organization would not cut down the overhead, the high cost of distribution, the wasteful element of excess stocks tied up in transit and the jobber's shelves, all along the line.

"This same thing is being done in other fields. The Douglas shoe people have long done it with great success. So have the Walkover stores. The plan is in somewhat an experimental stage as yet, as applied on a large scale; but it seems to have worked in almost every case where even the most ordinary executive vision was included.

"The stronger mills in New England can afford to take as much as ten or fifteen years to establish such a sales market. They have healthy surpluses. The treasurer can decide to use so much of that surplus in the next decade for advertising purposes, for building up his potential market. He can apportion another share of it for expansion along retail lines, so much more for other plans to cut down distribution costs. At the end of ten years he ought to be established impregnably.

"In the meantime southern competition will take on a different aspect from what it bears now. The South has no labor troubles, now. It has cheap living conditions—now. It has the lower land values. It has cotton at the door. Well—such things may not last forever.

"The cheap labor is at least an evanescent thing. It may be a problem for the New Englander to compete with now, but that is going to dissapear just as surely as the South grows industrially. The mere fact of growth does away with many of those economic advantages which the South now enjoys. Lands will go up in value. So will living costs. Grumblings of labor over the needs for wage adjustments will be the logical result. What will happen to cotton in the South we don't know. But what will happen to labor costs is as sure as that economic law exists.

"In the meantime New England can well afford to proceed calmly, equably have the capital, some of them at least have the vision, all it needs is the patience necessary for developing its market slowly, surely, soundly. New England is not slipping. Only those are slipping who think they are. It's easy enough to get out and fight for what's coming to you.

Convention of The American Cotton Manufacturers' Association

Much interest in the textile world centers in the twenty-eighth annual convention of the American Cotton Manufacturers' Association that is to be held in Atlantic City, N. J., Tuesday and Wednesday. May 27-28. In point of individual mill membership this is the largest of the textile organizations of the country, embracing approximately 90 per cent of the 1,181 mills in the South and quite a number in the North and East as well. Between 700 and 800 of the foremost cotton mill men of the country are expected to be present. A highly attractive program has been arranged. The Hotel Traymore will be convention headquarters.

The first session of the convention will be at 10 o'clock Tuesday morning, May 27, with President William E. Beattie, of Greenville, S. C., in the chair. After the usual preliminaries, there will be an announcement of committees and then will come the president annual address. The second address of the morning will be that of Dr. Henry Mace Payne, of New York, consulting engineer of the American Mining Congress. The afternoon session will be featured by a discussion of the present situation in the textile industry, particularly with reference to curtailment, importations and the tariff, led by Stuart W. Cramer, of Charlotte, N. C., chairman of the association's legislative and tariff committee, which will be participated in by a score of leading Southern manufacturers. In fact, this subject promises to be one of the most important and vital of the entire convention. Norman H. Johnson, economist of the Southern Wholesale Dry Goods Association and publisher of the Merchants Journal, Richmond, Va., will also speak on the theme, "The Southern Wholesale Dry Goods Merchant and His Problems."

The annual banquet of the association will take place Tuesday evening with the Hon. Curtis Dwight Wilbur, Secretary of the Navy, Washington, D. C., and Dr. D. W. Daniel, dean of Clemson College, as honor guests and speakers. The entertainment committee, headed by Andrew S. Webb, of Philadelphia, Pa., will have charge of the special features in connection with the banquet. The session Wednesday morning, May 28, will be devoted exclusively to business and will be executive.

Tentative Program.

The following tentative program has been issued by W. D. Adams, secretary:

First Session.

Tuesday, May 27, 10 A. M.
Convention Hall, Hotel Traymore.

Convention called to order by President William E. Beattie.

Invocation—Rev. Dr. Thomas J. Cross, Atlantic City, N. J.

Announcement of Committees:

Nominations—Arthur J. Draper, of North Carolina, chairman; B. E. Geer, of South Carolina, and P. E. Glenn, of Georgia.

Resolutions—W. J. Vereen, of Georgia, chairman; James P. Gossett, of South Carolina, and Arthur M. Dixon, of North Carolina.

President's Annual Address—William E. Beattie, of Greenville, S. C.

Address—"Industry and Citizenship," Hon. Henry Mace Payne, consulting engineer, American Mining Congress, New York City.

Adjournment.

Second Session.

Tuesday, May 27, 3 P. M.
Convention Hall, Hotel Traymore.

Address—"The Southern Wholesale Dry Goods Merchant and His Problems," Hon. Norman H. Johnson, Richmond, Va., Economist, Southern Wholesale Dry Goods Association, Publisher, The Merchants Journal.

Thematic Discussion — "Curtailment, Importations and the Tariff," Stuart W. Cramer, chairman, Legislative Committee.

Open Forum to all members.

Third Session.

Tuesday, May 27, 7:30 P. M.
Banquet Hall, Hotel Traymore.

Annual Banquet.

Toastmaster — President William. E. Beattie.

Speakers — Hon. Curtis Dwight Wilbur, Secretary of the Navy, Washington, D. C.; Dr. D. W. Daniel, dean, Clemson College, S. C.

Fourth Session—Business Meeting.

Wednesday, May 28, 10 A. M.
Convention Hall, Hotel Traymore.

Convention called to order by President William E. Beattie.

Annual Report of the Secretary-Treasurer—W. D. Adams, Charlotte, N. C.

Annual Report on the National Council of American Cotton Manufacturers—Stuart W. Cramer, joint chairman.

Reports of Committees:

National Committee — Stuart W. Cramer, chairman.

Traffic Committee—Capt. Ellison A. Smyth, Greenville, S. C., chairman; George W. Forrester, traffic manager. Remarks by Edgar Watkins, Watkins & Asbill, Atlanta, Ga., counsel.

Standardization Committee on Textile Fabrics, in Co-operation with the U. S. Bureau of Standards —William B. Hodge, Charlotte, N. C.

Revision of By-Laws—Stuart W. Cramer, chairman.

Resolutions — William J. Vereen, Moultrie, Ga., chairman.

Nominations — Arthur J. Draper, chairman.

Election of Officers.
Presentation of President's Medal.
Unfinished Business.
New Business.
Adjournment.

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Cotton Goods

New York.—Trading was very dull in the primary cotton goods markets last week and there was a further slight decline in prices on unfinished goods. Curtailing by mills assumed greater proportions during the week, due to the lack of new business. In New England curtailment is figured as high as 30 per cent, while the figure is considerably less than that in the South.

The easing in print cloth prices put them on about the same basis as the low level of last year. Sheetings continued dull. Fine combed goods were quiet and there was considerable talk of more business on imported cloths at prices below those quoted by domestic mills. Ginghams were slightly more active, but percales sold only in very small lots. In the wash goods lines, a fairly good business is passing in retail and wholesale lines, but mills got only a very small amount of new business. Heavy cottons, such as tickings and denims, were quiet at irregular prices.

Print cloths sold at 8½ cents for contract delivery on Thursday, but efforts to get more for late delivery failed during the day. It was possible to buy at that price in some places for May delivery. Business was of small proportions.

Sheetings have eased somewhat with the demand light. It is now possible to buy spots of 6.15s at 7⅛ cents freely, 2.85s at 14 cents and 3.60s at 12¼ cents. There was very little doing in drills, twills or staple carded sateens.

The fine goods business has been a little better. One mill has closed on about 30,000 pieces of broadcloths for future delivery at a very low price. Some other mills have been taking on orders ranging from 1,000 to 2,000 pieces. Some converters who have handled foreign venetians are now trying to arrange for late contracts in this country. More orders have been taken of late on small lots of shirtings.

Trading in cotton duck was limited almost entirely to small orders for spot shipment. A few sales of belting duck were reported on the basis of 45 cents, no freight paid. There was some demand for wide and sail duck for export markets, but no large business was handled.

The market for tire fabrics continued slow with very little new business during the week. There was little change in quotations, although a few mills have moved prices up slightly from recently low levels.

The Fall River print cloth market was quiet. On Friday, sales of about a thousand pieces of 25-inch 40x32 were reported at 4½. There was also some trading in 27-inch, 64x60, 7.60. Most of the other constructions were in very poor demand.

John V. Farwell Company, Chicago, says in its weekly review of trade:

"Wholesale dry goods business still feels the restraining influence of cold weather. It is especially noticeable with the arrival of a few days of warm weather that the sales barometer rises, but falls with lower temperature. Road sales are slightly less than during the corresponding week of last year. Buyers, however, have been in market in much larger numbers than during corresponding week and month of 1923. Alert distributors of cotton, wool and silk goods are watching the curtailment of production at the mills, which now averages about 25 per cent less than normal, and are making future commitments with present manufacturing conditions in mind. Collections are fair.

Prices quoted in primary markets were as follows:

Print cloths, 28-inch, 64x64s, 7 cents; 64x60s, 6¾ cents; 38½-inch 64x64s, 9 cents; brown sheetings, Southern standards, 15¾ cents; denims, 220s, 24½ cents; tickings, 26 cents; prints, 9¾ cents; staple ginghams, 15 cents; dress ginghams, 18½ and 21 cents.

United States Imports of Cotton Blankets.

Imports of cotton blankets into the United States during the year 1923 totalled 1,280,075 pounds, valued at $572,973. The leading countries from which they were imported were: Germany, 1,166,292 pounds, worth $508,772; Austria, 52,490 pounds, valued at $14,519; France, 20,241 pounds, with a value of $15,961; and England, 11,215 pounds, worth $12,632. Imports of cotton blankets (Jacquard woven figures) amounted to 19,361 pounds, with a value of $38,241, of which Germany furnished 15,442 pounds, worth $32,776.

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The Yarn Market

Philadelphia.—There was nothing new in the yarn markets last week. Business continued very slow and there was almost an entire lack of demand in all quarters of the market. The list of carded Southern weaving yarns and tinged insulating yarns showed scattered declines of about half a cent. A few small sales of 28s and 30s two-ply carded warps from stock were reported here on a basis of 47 cents and 52 cents, respectively. It was reported that the best price quoted from the South on two-ply tinged insulating yarn was 52 cents, but some lots were offered at resale here for half a cent lower.

Spinners' prices held rather firm, but dealers offered a good deal of yarn considerably less than the mills would consider. Prices showed considerable irregularity where stock yarns were offered.

A fresh break occurred Thursday in prices of single carded warps, two-ply carded skeins and warps and single carded cones, amounting, in some cases, to as much as 3 cents a pound, and bringing some of the regularly used numbers of white yarns down again to their lowest price levels of the year. Certain numbers of tinged and waste yarns are now obtainable here at the lowest prices since the last week of August, 1923. The result of this latest marking down of quotations has been to leave the price list in very irregular shape, so that some numbers are out of line.

An incident of this price reduction is the assertion by some of the dealers that short selling of yarns is again being resorted to in some quarters. Sales of 20s-2 Southern carded warps are reported with growing frequency at 45 cents and 30s-2 warps at 50 cents a pound. Short selling is given as the reason for these low prices.

Quotations in this market were published as follows, although they are considerably below prices at which mills would take on new business.

Two-Ply Chain Warps.

2-ply 8s	42 a__	2-ply 24s	48½a49½
10s	43 a44	2-ply 26s	50½a51
12s to 14s	44 a45	2-ply 30s	52 a__
2-ply 16s	46 a__	2-ply 40s	62 a__
2-ply 20s	47 a__	2-ply 50s	72 a__

Two-Ply Skeins.

8s	42 a__	40s	60 a__
10s to 12s	42½a43½	40s ex.	64 a65
14s	44 a__	50s	72 a__
16s	45 a46	60s	80 a81
20s	46 a47	Tinged Carpet—	
24s	48 a48½	3, 4-ply	38 a__
26s	49½a50	White Carpet—	
30s	51½a52	3, 4-ply	41 a__

Waste Insulating Yarn.

6s, 1-ply	36 a__	12s, 2-ply	40 a41
8s, 2, 3 and 4-ply	36½a__	20s, 2-ply	45½a46
10s, 1-ply and 2-ply	38 a__	26s, 2-ply	49½a50
		30s, 2-ply	51 a51½

Single Chain Warps.

10s	43 a__	24s	48 a__
12s	44 a__	26s	50 a__
14s	44½a__	30s	52 a53
16s	45 a__	40s	62 a__
20s	46 a__		

Single Skeins.

6s to 8s	41½a__	20s	45½a46
10s	42 a__	24s	48 a__
12s	43 a__	26s	49½a__
14s	43½a__	30s	51 a52
16s	44 a__		

Frame Cones.

8s	41 a__	22s	45½a46
10s	41½a__	24s	46½a__
12s	42 a__	26s	47 a__
14s	42½a43	28s	48 a__
16s	43½a44	30s	50 a51
18s	44½a__	30s ty'g in	48 a49
20s	45 a__	40s	58½a59½

Combed Peeler Skeins.

2-ply 16s	60 a__	2-ply 50s	78 a__
2-ply 20s	63 a__	2-ply 60s	80 a83
2-ply 30s	66 a__	2-ply 70s	98 a__
2-ply 36s	68 a__	2-ply 80s	1 12a__
2-ply 40s	70 a72		

Combed Peeler Cones.

10s	50 a51	30s	63 a65
12s	51 a52	32s	63 a65
14s	52 a53	34s	65 a67
16s	53 a54	36s	70 a71
18s	54 a55	38s	70½a71½
20s	55 a__	40s	71 a72
22s	55 a56	50s	78 a80
24s	56 a56½	60s	85 a__
26s	56½a57	70s	1 00a__
28s	57 a58	80s	1 10a__

Carded Peeler Thread Twist Skeins.

20s, 2-ply	54 a__	36s, 2-ply	64 a__
22s, 2-ply	55 a__	40s, 2-ply	63 a__
24s, 2-ply	57 a__	45s, 2-ply	73 a__
30s, 2-ply	59 a__	50s, 2-ply	78 a__

Carded Cones.

10s	46 a__	22s	52 a__
12s	47 a__	26s	55 a__
14s	48 a__	28s	56 a__
20s	51 a__	30s	58 a__

Junior Technologist.

The examination will be held throughout the country on June 4. It is to fill vacancies in the Bureau of Standards, Department of Commerce, at an entrance salary of $1,860 a year. Advancement in pay may be made without change in assignment to $2,400 a year.

Examination will be given in the following optional subjects: General technology, leather technology, oil technology, paper technology, rubber technology, and textile technology.

Applicants must have been graduated from a full four years' high school course; and, in addition, have been graduated with a degree from a college of recognizzed standing, with the completion of at least 118 credit hours, such course to have included the fundamentals of chemistry, mathematics, and engineering or physics. Applicants who have completed at least two years of the college course may substitute 12 months of qualifying experience for each of the other years lacking of completing the college work.

Full information and application blanks may be obtained from the United States Civil Service Commission, Washington, D. C., or the secretary of the board of U. S. civil service examiners at the postoffice or custom house in any city.

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Wanted.—By overseer of weaving, position after May 1st. 18 years as overseer, can run your job and get results. Address J. C. M., Care Textile Bulletin.

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Want high class fancy weaver. Must be able to show previous record on fancy goods and be able to furnish satisfactory references. Morven Cotton Mills, East Durham, N. C.

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Place as carder and spinner by man with wide experience on all class work both white and colored. Can furnish the very best of references as to character and ability. Have best of reasons for desiring a change. Married and 38 years of age. Can take position on short notice. Address P. A. W., Care Southern Textile Bulletin.

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The fee for joining our employment bureau for three months is $2.00, which will also cover the cost of carrying a small advertisement for one month.

If the applicant is a subscriber to the Southern Textile Bulletin and his subscription is paid up to the date of his joining the employment bureau the above fee is only $1.00.

During the three months' membership we send the applicant notices of all vacancies in the position which he desires.

We do not guarantee to place every man who joins our employment bureau, but we do give them the best service of any employment bureau connected with the Southern textile industry.

WANT position as superintendent or will take place as overseer, carding spinning or weaving, prefer weaving. Now employed in good North Carolina mill, but wish to change for better place. Best of references. No. 4135.

WANT position as overseer carding in good sized room. Prefer Georgia or Alabama. Eighteen years as overseer in good mills. Now overseer in large mill but have good reasons for wishing to change Age 48, have family, have good textile education and can run the job. No. 4136.

OVERSEER carding, now employed, wishes to make change. My experience and training fit me to handle large job in good mill. Good manager of help, first-class references as to character and ability. No. 4137.

WANT position as superintendent yarn mill of 10,000 to 15,000 spindles. Age 46, married, long practical experience, 12 years as superintendent. Now employed but have good reasons for making change. References. No. 4138.

WANT position as slasher tender or second hand in spinning. Well qualified for either place. Best of references. No. 4139.

WANT position as roller coverer. Am expert in roller covering and can demonstrate my ability in short time. Now employed in good mill. Want to correspond with mill needing man of unusual ability. No. 4140.

WANT position as overseer of carding. Long experience in handling a combination of both rooms and can get excellent results. Good references. No. 4148.

WANT position as electrician with good mill or some other manufacturing plant. Have had 15 years' experience. Can furnish excellent references. No. 4149.

WANT position as superintendent, or would accept place as carder or spinner. Practical man of long experience as both superintendent and overseer. Best of references. No. 4150.

WANT position as overseer carding or spinning, or master mechanic and electrician. Employed at present but have good reasons for making a change. Can come on ten days' notice. First-class references. No. 4151.

WANT position as overseer carding and spinning. Am 44 years old and have had 20 years' experience as overseer and assistant superintendent. Can furnish best of references. No. 4152.

WANT position as overseer plain weaving or overseer cloth room. Have had more than 25 years' experience on practically all kinds of goods. Am qualified to handle either position. Age 46, have family. Best of references. No. 4153.

WANT position as overseer spinning. Have had long experience in the spinning room and have taken a course with the I. C. S. Good references. No. 4154.

WANT position as overseer of slasher department. Age 32, eight years' experience as slasher and beamer. Good references. No. 4154.

WANT position as overseer weaving. Long experience on wide variety of fabrics and am capable man in every respect. Good references from past and present employers. No. 4156.

WANT position as superintendent of tire yarn or fabric plant, or fine combed yarn mill. Now located in East, but have had 6 years' experience in South. Long term of services superintendent and overseer and am reliable man who can get excellent results. Excellent references. No. 4157.

WANT position as overseer cloth room. Long experience on lawns and sheetings and can guarantee satisfaction. Good references. No. 4158.

WANT position as overseer of small card room or second hand in large room. Am also excellent card grinder. Long experience in good mill. A-1 references. No. 4159.

WANT position as superintendent. Have had 18 years as such and am now employed in my 19th year. Can handle yarn or cloth mill and am high class, practical man. No. 4160.

WANT position as overseer carding or spinning, or both. Past experience and training fits me to handle job in efficient manner. Good references. No. 4161.

WANT position as overseer spinning, or overseer weaving. Long experience in good mills in both departments. Reliable, steady man of good habits. Excellent references. No 4162.

WANT position as master mechanic. Now employed. Experienced in both steam and electric plants and can handle work in satisfactory manner. Good references. No. 4163.

WANT position as overseer spinning. experienced for many years on both carded and fine combed yarns. Would like to correspond with mill needing high-class man. Excellent references. No. 4164.

WANT position as overseer weaving. Experienced on many different fabrics and am competent and reliable. No. 4165.

WANT position as superintendent. Fitted by training and experience to handle large mill in satisfactory manner. Good references. No. 4166.

WANT position as superintendent; yarn mill preferred. Now superintendent of good yarn mill and have held job for over two years. Giving entire satisfaction. Thoroughly understand carding and spinning. 15 years as superintendent and overseer. Good references. No. 4167.

WANT position as superintendent of cloth mill. Long experience and can give references from many mill executives to show excellent record of past service. No. 4168.

WANT position as superintendent of yarn or cloth mill. Now employed as night superintendent but wish day job. References to show ability, character and past record. No. 4169.

WANT position as superintendent or will take overseer's place in any department. Thoroughly qualified to handle any room in the mill. Best of references. No. 4170.

WANT position as superintendent or carder and spinner. Will go anywhere. Prefer yarn mill of 5,000 to 30,000 spindles. Can come at once. Best of references. No. 4176.

WANT position as carder or spinner. Ten years' experience in carding, spinning and winding. Now employed, but will change on short notice. Age 37, with family. References from present and past employers. No. 4172.

WANT position as superintendent. Practical man, good pusher, can get quality production on all classes of yarns. Good references. No. 4173.

WANT position as overseer spinning. Practical man of long experience on practically all yarn counts made in South. Good references. No. 4174.

WANT position as overseer spinning. Have had 20 years' experience in spinning, spooling and warping in some of best mills in South, and West, both white and colored work. Age 36, married, sober, now employed as overseer. Good references. No. 4175.

WANT position as superintendent or would take overseer of carding and spinning. Many years' experience as superintendent and overseer and am well qualified in every respect. Best of references. No. 4171.

SUPERINTENDENT or carder and spinner desires position. Would take place as night superintendent in large mill. Prefer mill on plain work. Satisfactory references. No. 4177

WANT position as superintendent of mill or plain weaving or hosiery yarn. Am now 32 years of age and can give good references. Now employed as superintendent. No. 4178.

WANT position as superintendent or assistant superintendent in medium size mill. Would consider weave room in large mill. Best of references. No. 4179.

WANT position as spinner. Age 48. Have had 20 years' experience and can give excellent references. No. 4180.

WANT position as superintendent of finishing in yarn plant. Long experience in large Eastern mill and have excellent record of service. Fine references. No. 4181.

WANT position as carder or spinner, or box comber. Am specialist in combed yarn work and have had a long term of satisfactory service. Excellent references. No. 4182.

WANT position as shipping clerk. Four years' experience and can handle big job Now employed as shipping clerk. Gilt-edged references. No. 4183.

WANT position as carder and spinner. Now employed as such, but wish a larger place. Experienced, practical and reliable man. No. 4184.

WANT position as overseer finishing department, white or colored goods. Have had 16 years' experience in cloth room, 12 years as overseer on white and colored goods, wet and dry finish. Best of references. No. 4185.

WANT position as overseer spinning. Have had 12 years' experience as overseer and can furnish best of references. No. 4186.

WANT position as overseer weaving. Can handle either plain or fancy work both colored and white. Now employed. First-class references. No. 4187.

WANT position as superintendent, carder, spinner or carder and spinner. Have acceptably filled overseer's position for long term of years. Best of references. No. 4188.

WANT position as master mechanic and engineer. Experienced and skilled mechanic of long experience. Best of references. No. 4189.

WANT position as overseer spinning. 12 years as overseer and 5 years as overhauler in spinning and twisting. Good references. Address No. 4190.

WANT position as superintendent, or overseer weaving or designer. Have specialized in fancy weaving and designing and can show samples that have proved business getting. Long record of satisfactory service in fine weaving plants. Good references. No. 4192.

WANT position as superintendent of small yarn mill or carder and spinner in larger mill Have had 20 years as overseer. Good references. No. 4191.

WANT position as superintendent or carder and spinner. Now employed but want better job. First-class references. No. 4193.

WANT position as superintendent. Prefer weaving mill. Practical man of long experience on great variety of fabrics. Good references No. 4194.

WANT position as overseer carding anywhere in South. Long experience and also graduate of I. C. S Good references. No. 4197.

WANT position as overseer spinning, twisting or winding at not less than $40 weekly. Have had 25 years in the mill. 10 years as overseer, have run present room 3 years. Good references. No. 4195.

WANT position as overseer weaving. My experience has been as overseer in a number of large weave rooms and many kinds of goods. Excellent references. No. 4196.

WANT position as overseer of small weave room on plain goods. Am hustler for quality production and good manager of help. Good references. No. 4198.

WANT position as carder or spinner or superintendent. Now employed. Many years as both superintendent and overseer and am competent worker. Good references. No. 4199.

WANT position as carder. Have had 7 years as overseer and can give first-class references. No. 4200.

WANT position as superintendent of yarn or weave mill, or overseer weaving. Long experience in carding, spinning and weaving and winding and can give good references. No. 4201.

WANT position as superintendent of yarn mill. Prefer plant on tire fabrics. Experienced man of good habits and character and can give good references. No. 4202.

WANT position as overseer weaving on any kind of plain work; 12 years as overseer and have always been able to get the goods. Now employed but have good reasons for changing. Good references. No. 4203.

WANT position as spinner. Have held present job for over 6 years and made good record. Can get quality production at right price. Good references No. 4203.

WANT position as carder or carder and spinner. Am hustler for production and quality and know how to keep costs down. No. 4204.

WANT position as superintendent of yarn mill. Have had 12 years' experience. Have finished course in grading and stapling cotton. Know mill business thoroughly. Best of references as to character and ability. No. 4206.

WANT position as carder in small mill or second hand in large mill. At present employed by good mill but desire to change. Good references as to character and ability. No. 4207.

WANT position as carder. Thoroughly understand the carding process and have long term of experience in good mill. Best of references. No. 4208.

WANT position as superintendent. Experienced and reliable man who can get results. Experience gained in some of the best mills in the Carolinas. Excellent references. No. 4209.

WANT position as superintendent. Am competent executive and good manager of help, experienced in all departments of mill and man of good character and habits. Best of references. No. 4210.

WANT position as superintendent of medium sized yarn mill or assistant superintendent in large mill. Prefer mill in Georgia, Alabama or Missippi. Long experience as overseer spinning. Have held present place as assistant superintendent for many years, making 4s to 40s single and ply cones, tubes, skeins and warps. References. No. 4111.

WANT position as superintendent or overseer carding and spinning. Am 41 years old, have had 20 years' experience as overseer and superintendent of mills in Georgia. Can give good references as to character and ability and can come at once. Good manager of help. No. 4113.

MASTER mechanic and chief engineer of extraordinary ability will consider proposition by March first. Fine machinist and mechanical engineer. Correspondence strictly confidential. No 4114.

WANT position as superintendent of yarn mill, or would accept place as carder and spinner. Practical man of long experience who can get results and who can successfully manage help. References. No. 4423.

WANT position as overseer carding. Qualied by experience and training to handle card room in thoroughly practical and up-to-date manner. Good references. No. 4224.

WANT rposition as superintendent o overseer large weve room. Now employed as superintendent but would like better job. Have long record of successful service and references to show it. No. 4225.

WANT position as overseer weave room or cloth room. Now employed, but wish larger job. Experienced on many lines of goods, competent and reliable. References to show character and ability. No. 4226.

WANT position as assistant superintendent. Age 25, graduate of well-known textile school, three years' experience in all departments of mill, two years as manager of testing laboratory in large mill. Excellent reference. No. 4227.

WANT position as overseer weaving. My experience covers a long term of years in a number of first-class mills, making a wide variety of goods. Excellent references. No. 4228.

WANT position as carder and spinner, either or both. Age 35, have family. Experienced man who can give as reference some of the best mills in the South. No. 4231.

WANT position as overseer of weaving or superintendent of plain weaving mill. Long experience as both superintendent and overseer and can get excellent results. No. 4333.

WANT position as overseer carding. Now employed as night carder, but wish day job. Have had 20 years' experience in carding, spinning, spooling and warping, both white and colored work. Can furnish good references. No. 4234.

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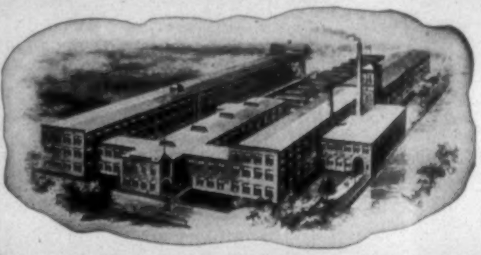

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- Fales & Jenks Machine Co.

SPINNING FRAME SADDLES--
- Dixon Lubricating Saddle Co.

SPINNING RINGS—
- Draper Corp.
- Pawtucket Spinning Ring Co.
- Whitin Machine Works.
- Whitinsville Spinning Ring Co.

SPOOLS—
- David Brown Co.
- U. S. Bobbin & Shuttle Co.
- Courtney, The Dana S., Co.
- Jordan Mfg. Co.
- Lestershire Spool & Mfg. Co.
- Steel Heddle Mfg. Co.
- Walter L. Parker Co.
- ——See Bobbins, Spools, Shuttles.

SPROCKETS, SILENT CHAIN—
- Link-Belt Co.

SPOOLERS—
- Draper Corp.
- Saco-Lowell Shops.
- Whitin Machine Works.

SPINNING TAPES—
- American Textile Banding Co.
- Barber Mfg. Co.

STARCH—
- Arnold, Hoffman & Co., Inc.
- Corn Products Refining Co.
- Keever Starch Co.
- Penick & Ford, Ltd.
- Stein, Hall & Co.

STOCKS AND BONDS—
- American Trust Co.

STRIPPER CARDS—
- L. S. Watson Mfg. Co.

SWITCH BOXES—
- Chicago Fuse Mfg. Co.

TEXTILE MACHINERY SPECIALTIES—
- Cocker Machine and Foundry Co.
- Hyatt Roller Bearing Co.

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TEMPLES—
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- Hopedale Mfg. Co.

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- B. F. Perkins & Son, Inc.
- Henry L. Scott & Co.

TRANSFER STAMPS—
- Kaumagraph Co.

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- Chicago Belting Co.
- Grant Leather Co.
- Edward R. Ladew Co.
- E. F. Houghton & Co.
- Graton & Knight Mfg. Co.

TRANSMISSION MACHINERY—
- Allis-Chalmers Mfg. Co.
- Tolhurst Machine Works.
- William Sellers & Co., Inc.
- Wood's, T. B., Sons Co.

TOILETS—
- Vogel, Jos. A., Co.

TOOL CABINETS AND STANDS, STEEL)—
- Lupton's, David, Sons Co.

TRANSMISSION MACHINERY—
- Hyatt Roller Bearing Co.

TRANSMISSION SILENT CHAIN—
- Link-Belt Co.
- Morse Chain Co.

TRUCKS (MILL)—
- Rogers Fibre Co.

TUBES, PAPER—
- Sonoco Products Co.

TURBINES (STEAM)—
- Allis-Chalmers Mfg. Co.

TWISTING MACHINERY—
- Draper Corp.
- Saco-Lowell Shops.
- Whitin Machine Works.

TWISTING TAPES—
- Barber Mfg. Co.

UNDERWEAR MACHINES—
- Merrow Machine Co.

VENTILATING APPARATUS—
- American Moistening Co.
- Parks-Cramer Co.

VENTILATING FANS—
- B. F. Perkins & Son, Inc.

WARPERS—
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- Crompton & Knowles Loom Works.
- Draper Corp.
- T. C. Entwistle Co.

WARP DRESSING—
- Arnold, Hoffman & Co., Inc.
- Bosson & Lane.
- Drake Corp.
- L. Sonneborn ons, Inc.
- Seydel-Thomas Co.
- Wadsworth, Howland & Co., Inc.

WARP STOP MOTION—
- Draper Corp.
- Hopedale Mfg. Co.
- R. I. Warp Stop Equipment Co.

WARP TYING MACHINERY—
- Barber-Colman Co.

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- Nichols Mfg. Co.

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- Rogers Fibre Co.

WASTE BINS, STEEL—
- Lupton's, David, Sons Co.

WASTE RECLAIMING MACHINERY—
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- Whitin Machine Works.

WASTE PRESSES—
- Economy Baler Co.

WATER INTAKE SCREENS—
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- Bosson & Lane.
- Marston, John P.
- Metz, H. A.
- Jacques, Wolf & Co.
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- Universal Winding Co.

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- Parks-Cramer Co.
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WINDOW GUARDS—
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WINDOW FRAMES AND SASH, STEEL—
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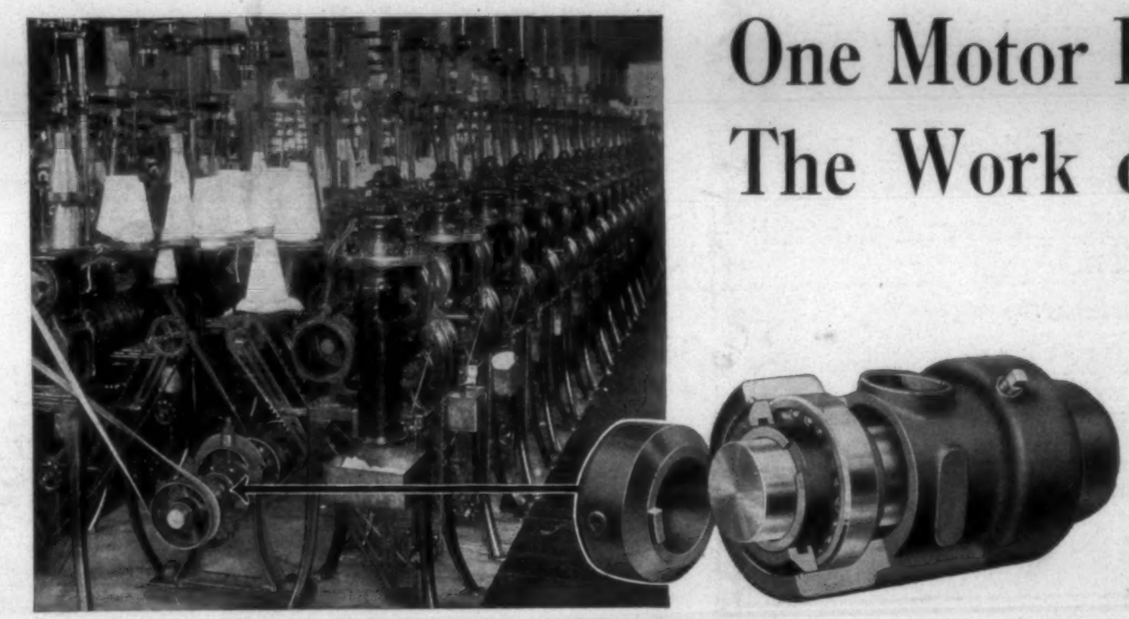

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